GENERAL INDEX.

(Illustrated Subjects are Marked with an Asterisk after the Number of the Page.)

A.

A.T. Burner for Gas, Method of Use, 569
Abbey Mills Chemical Works, West Ham, Contact Sulphuric-Acid Plant, 518*
Aberdeen Broadcasting Station, 332
Abiett, F. R., on the Fairfield Yard, 598
— Prize, Iron and Steel Institute, 255, 539

Accidents :

Collapse of All-Welded Bridge, Hasselt, Belgium, 137. See LETTERS, 187, 360
Colliery Accidents, Safety in Mines Research Board's Investigation, 719
Electrical Accidents and their Causes, Report on, 708
Explosions, Boiler. See *Boiler Explosions* and PARAGRAPH INDEX
Eye Injuries, Prevention of, Royal Eye Hospital Exhibition, 20
Fire at Kingston-on-Thames Power Station, 739
Flames, Combustion, and Explosion of Gases (Review), 455
Industrial Accidents, Annual Report on, 193, 195
Mining Accidents, Annual Report, 620
— — from Electrical Plant, 367, 730
Railway Accidents, British, 1937, Report, 150
— — Castlecary, Report, 16
— — Charing Cross Underground, Report, 396
— — Oakley Junction, Report, 214
— — Ruthergien, Report, 256
— — Waterloo Tube, Report, 71
Road Accidents, 1926-1937, 435*
Wreck Returns, Lloyd's Statistics, 132, 774
Accum, F. C., Centenary of, 96
Accumulators, Electric. See *Electric*
Acetylene Welding. See *Welding*
Acoustics, Combination Tones in Sound and Light, 593
— Investigations at National Physical Laboratory, 666
— Methods of Testing Materials, 652
Activated Sludge. See *Sewage*
Address, Presidential. See *Presidential Address*
Admiralty. See *Warships*
Aeration Test Burner for Gas, 569
Aerial Navigation. See *Telegraphy, Wireless*
— Propellers. See *Propellers* under *Aeronautics*
— Transport. See *Aeronautics*
Aerodynamics. See *Aeronautics*
Aeronautical Society, Royal, Use of Light Alloys in Aircraft Construction, by R. Le Coeuvre, 538; American Methods of Aircraft Production, by T. P. Wright, 689

Aeronautics :

Aerodynamics Department, National Physical Laboratory, Work of, 440*, 526*, 550*
Aerofoils in Cascade, Deflection of Air Currents by, 552*
— Model, National Physical Laboratory Investigations on, 442*, 526*
Aeronautics, Handbook of (Review), 285
Aeroplane, "Battle" Bombing (Fairey Aviation Co., Ltd.), 139*
— Bombing, "Hampden" (Handley Page, Ltd.), 7*
— Design and Efficiency, Progress in, 472
— Passenger, Curtiss-Wright "20" (Curtiss-Wright Corporation), 748
— — Junkers "Ju 90," 487*. See 315*, 720*. See LETTER, 472
— Stability of, National Physical Laboratory Investigations, 527
— Vickers-Wellesley, Record Long-Distance Flight by, 77, 565
— See also *Seaplane* (below)
Air Ministry, Callender-Hamilton Unit-Construction Aeroplane Shed, 727*
— Raid Precaution Appliances at Public Works Exhibition, 581*
— — Precaution Decontamination Equipment (Transport Engineering), Ltd., 643*
— — Precautions, Report of Institution of Structural Engineers, 569
— — Precautions and Sewage Undertakings, 750
— — Precautions and Water Supply, 625. See *Erratum*, 656
— — Protection, Engineering Aspects, 594
Air Raid Protection Exhibits at Building Trades Exhibition, 529
— — Protection Institute, Formation of, 82; Inaugural Meeting, 572; Planning of Shelters and Buildings for Air Raid Protection, by G. R. F. Nuttall, 572
— — Shelter Construction, Models of, 335, 420
— — Shelters, Problem of, 692
— — Warning Devices, Investigations on, 667
— Transport, International, 109
Aircraft Cabins, Wind-Tunnel Tests of, 307
— Construction Metals, Corrosion-Fatigue Tests of, 63*
— — Use of Light Alloys in, 538
— Controls, National Physical Laboratory Experiments on, 528
— Design and Efficiency, Progress in, 472
— Effect of Wind Gusts on, 552
— Parts, Sheet-Metal, Drop-Stamping Plant for, 52*
— Production, American Methods of, 689
— Vibration in, Investigation of, 256*, 283, 285*
Airship "Graf Zeppelin," Description of, 751*
Autogiro, National Physical Laboratory Investigations on, 552
Balloons, Kite, Stability of, 528
— Meteorological, Short-Wave Radio Transmitter for, 727
Civil Aeronautics Act of 1938, United States, 350
— Aviation. See also *Airships* (above)
Drag Investigations at National Physical Laboratory, 442*, 526*
Engine, Aeroplane, Bristol Perseus XIIc, Endurance Test of, 763
— — Gipsy Twelve (De Havilland Aircraft Co., Ltd.), 48*
— — 800-1,200 h.p., Junkers Jumo 211, 487*
— — Oil, Junkers, Operating Experiences with, 315*. See LETTER, 472
— — Power, Weight and Efficiency of, 80
— — Progress in Design and Efficiency, 472
— — 600-h.p. Six-Cylinder Jumo 205 C Type, 720*
— — Vibration from, 256*, 285*
— Airship, 800-1,150 h.p. Twelve-Cylinder Daimler-Benz for "Graf Zeppelin," 753*
Flutter in Aeroplanes, National Physical Laboratory Investigations on, 552
Flying Boat "Cams-Potez 161," Flying Model of, 103
— — Dornier, with Junkers Engine, 317*. See LETTER, 472
Imperial College of Science and Technology, Department of Aeronautics, Syllabus, 374
Kite Balloons, Investigation of Stability of, 528
Mayo Composite Aircraft, Atlantic Flight by Seaplane "Mercury," 137
Model Experiments on Aeroplanes and Seaplanes, 252
— — See also *Wind Tunnel* (below)
Navigation, Aerial. See *Telegraphy, Wireless*
Noise from Aeroplanes, National Physical Laboratory Investigations on, 667
Propeller, Aerial, Induction Torsionmeter for Testing of, 71*
— — National Physical Laboratory, Investigations on, 552
— — Vibration of, 256*, 285*
Royal Air Force, Expansion Scheme, 17, 132; Development Flight, 77. See 565; Defence Exercises, 194; Civilian Wireless Reserve, 309; Record Long-Distance Flight, 565. See 77
— Aircraft Establishment, Vibrograph for Aircraft, 285*; Torsiograph for Aircraft, 286*; Wind-Tunnel Tests on Design of Cabins, 307
School for Aircraft Apprentices, Cosford, 139
Seaplane, Long-Distance "Hamburg HA 139," 720*
— "Mercury," Mayo Composite Aircraft, Atlantic Flight by, 137
— Ocean-Going, "HA 139" with Junkers Engine, 317*. See LETTER, 472
Shed, Aeroplane, Transportable, Callender-Hamilton Unit-Construction, 727*
Society of British Aircraft Constructors' Scholarships, 42
Stability, Aeroplane. See *Aeroplane* (above)
Surveying, Aerial, Stereo-Comparator for (Cambridge Instrument Co., Ltd.), 320
Wind-Tunnel Experiments, Application of Dynamic Similarity to, 252
— — High-Speed, National Physical Laboratory, 196*
— — Investigations at National Physical Laboratory, 440*
— — New, at National Physical Laboratory, 440
— — Tests of Aircraft Cabins, 307
Wings, Aeroplane, Design of, 472
— Surfaces, Metal, Effect of Rivets and Joints on Drag of, 526*
Wireless Apparatus for Aircraft. See *Telegraphy, Wireless*
See also PARAGRAPH INDEX
Aeroplanes. See *Aeronautics*
Afforestation, Rainfall and Soil Erosion, 579, 638
African Cedars for Pencils, Report, 292
Age-Hardening, Aluminium Alloys, Investigations on, 236
— — Effect of High-Purity Aluminium, 568
Agricultural Development, Electricity in (Review), 640
— Engineers, British, Institution of, Inaugural Meeting, 620
— Hall. See *Exhibition*
— Machinery Exhibition, Paris, 26*
— — at Smithfield Club Show, 681, 732*
— Motors. See *Engines; Motors; Tractors*
— Society, Royal, Cardiff Show, 29*, 65*, 93*
— Tractors. See *Tractors*
Agriculture, British, Electricity Supply for, 498, 607
— — Use of Petroleum Fuels in, 608
— Egyptian, Power Supply for, 453
— Electricity Supply for, 499, 608
— French, Power Supply for, 499, 607
— See also *Irrigation* and PARAGRAPH INDEX
Ahmed, Dr. A. A., on Hydro-Electric Power Developments on River Nile, 453
Air, Compressed. See *Compressed Air; Pneumatic*
— Compressing Plant in Motor Lorry (Guy Motors, Ltd.), 583*
— Compressor Set, Automatic, Motor-Driven (Lacy-Hulbert & Co., Ltd.), 529*
— — with Integral Diesel-Engine Drive (Ingersoll-Rand Co., Ltd.), 732*
— — Single-Stage Twin-Crank (G. & J. Weir, Ltd.), 154*
— — Tests, 1,000-h.h.p. Vee-Belt Drive for (J. B. Lindley (1931), Ltd.), 140*. See *Addendum*, 191
— — Two-Stage, with Automatic Control (J. B. Lindley (1931), Ltd.), 760*
— Conditioned Rooms for Tropics, 132
— Conditioning, Heating and Ventilation, Fundamentals (Review), 167
— — in Summer and Winter (Review), 610
— Currents, Deflection by Cascade of Aerofoils, 552*
— Ducts, Pressure Losses in, Investigation of, 302
— Flow Meter, Velometer, (Metropolitan-Vickers Electrical Co., Ltd.), 625
— — through Nests of Tubes, Experiments on, 605*, 665*, 723*
— Force, Royal. See *Aeronautics*
— Heater, Gas-Fired Mobile (Serck Radiators, Ltd.), 513*
— — Gas-Fired (Perfecta Gas Thermostats, Ltd.), 513*
— — S.S. "Mauretania," 122
Air Liquide, Société, Reconditioning Worn Metal Surfaces by Oxy-Acetylene Welding, 490
— Metering Nozzle, National Physical Laboratory Investigations on, 196
— Ministry. See *Aeronautics*
— Pollution. See *Atmospheric Pollution; Smoke Abatement*
— Pump. See *Air Compressor*
— Raid Precautions. See *Aeronautics*
— Refractive Index of, National Physical Laboratory Investigations on, 267
— and Saturated Steam, Mixed, Temperature and Pressure of, 674*
— Screws. See *Propellers* under *Aeronautics*
— Supply to Ship's Boiler Room, Model Tests on, 314*
Air Testing of Pumps, 245*, 252
— See also *Atmosphere*
Aircraft Establishment, Royal. See *Aeronautics*
— See *Aeronautics*
Airships. See *Aeronautics*
Aitkenhead, W., Bracken Eradicator, 94*
Aldershot Army Vocational Training Centre, Souvenir, 686
Aldgate East Underground Station, Reconstruction, 531*
Alexander, G. H., Machinery, Ltd., Radial Drill with Pre-Selective Gear, 375*. See *Addendum*, 477
Alexander, Dr. W. O., on Copper-Rich Nickel-Aluminium-Copper Alloys, 567
Alexandra Palace, London, Television Station, 565
— Pier Reconstruction, Montreal, 69*
Algæ as Indicators of Water Conditions, 691
Alkali, &c., Works, Annual Report, 138
— Action on Refractories, 658
Allen, F. W., on Air-Raid Precautions and Sewage Undertakings, 750
Allen, R. W., on Use of Scale Models in Engineering, 243*, 313*. See 252. See *Erratum*, 284
Allen Road Machinery Corporation, Road-Maintenance Machine, 118*
Allis-Chalmers Manufacturing Co., 115,000-h.p. Hydraulic Turbines, 59*, 179*, 230*, 549*, 608*, 669*, 693*; 16-b.h.p. Petrol-Driven Agricultural Tractor, 96; ¼-cub. yd. Hydraulic Loading Shovel, 403*
Allison, H., on Relief of Internal Stress in Castings, 230*
Allowances in Machine Work. See *Gauges Gauging*
Alloys. See *Metallurgy; Microphotographs;* PARAGRAPH INDEX
Alluvial Rivers, Control Problems of, 579, 638, 681*, 740, 754
Alternating Current. See under *Electric*
— Stress. See *Tests (Materials)*
Alternators. See *Generators, Electric; Turbo-Generators*
Aluminium Alloys. See *Alloys* under *Metallurgy*
— in Cast Iron, Effect of, 746
— Foil for Insulating Purposes, Investigations on, 596
— High-Purity, Effect on Age-Hardening, 568
— Industry, Market Control in (Review), 182
— Latent Heat of Fusion of, 594
— National Physical Laboratory Investigations on, 236
— See also *Metallurgy; Metal-Price Diagrams*
American Bridge Co., Thousand Islands Bridge System and Blue Water International Bridge, 377*
— Methods of Aircraft Production, 689
— Navy. See *United States* under *Warships*
American Rolling Mill Co., Ltd., Continuous Strip Mill at, 580
— Society of Mechanical Engineers. See *Mechanical Engineers*
— — for Testing Materials. See *Testing*
— Strip Mill, Development of, 520
— See also *United States*.
Ammonium Sulphate Manufacture, 138
Anchorage for Machines, Plastic Asbestos for (Philplug Products, Ltd.), 348*
Anderson, A., on Bituminous Surfaces of Roads, 664
Anderson, R. L., on Strip Mining of Bituminous Coal, 227*
Anglo-French Ultra-Short Wave Radio-Telephone Link, 761
Annealing. See *Heat Treatment* under *Metallurgy*
Annual Publications. See LITERATURE INDEX
— and Reference Books, 69, 141, 170, 187, 341, 686, 706, 762. See LITERATURE INDEX
Anthracite as Motor Fuel, 299
Anti-Friction Metals. See *Alloys* under *Metallurgy*
Antimony Alloys. See *Alloys* under *Metallurgy*
— Mining in Yugoslavia, 685
— Prices. See *Metal-Price Diagrams*
Apparatus, Scientific, Exhibition, Royal Society Conversazione, 17
Appleby Frodingham Steel Co., Ltd., Hoesch Piling for Cofferdam, Waterloo Bridge, 588*
Appointments. See PARAGRAPH INDEX
Apprenticeship. See *Education*
Approach Spans, Balanced-Cantilever Bridge over Connecticut River, 553*, 676
Apsley Station, London Midland & Scottish Railway, 402*

Aqueducts, Roman, Description of, 542
Arbitration in Labour Disputes. See *Labour Notes*; PARAGRAPH INDEX
Arc. See *Furnace*; *Welding*
Arch Bridge, Ferro-Concrete, over River Thames, Waterloo, London, 587*
— — Settlement, Analysis of, 403*
— Span, Steel, Thousand Islands Bridge over St. Lawrence, 377*
Archimedes, Career and Work of, 541
Architects, Naval. See *Naval Architects*
Argentine Destroyer "Entre Rios," 392, 455
— Railways, 900-h.p. Diesel-Electric Locomotives, 48
— State Railways, Articulated Railcars for, 702*, 756*
Armament Programme and Export Trade, 708, — See also *Warships*
Armoured Ships. See *Warships*
Army, Science in, Exhibition, Science Museum, 621
— Vocational Training Centre, Aldershot, Souvenir, 686
Arrol, Sir W., & Co., Ltd., Gas Profiling Machine, 327*; Electric-Welded Hydraulic Riveting Machine, 327
Arterial Roads. See *Roads*
Artus Milling-Cutter Spacers, 517
Asbestos, Plastic, for Machine Anchorage (Philplug Products, Ltd.), 348*
"Ascaro," Italian Destroyer, Launch of, 478
Asea Electric, Ltd., Sohwal Power Station, India, 768*
Ash Disposal at Power Stations, 690
Ashbridge, Sir N., on Development of Television, 565
Associated Equipment Co. Ltd., 90-h.p. Direct-Injection Oil Engine, 147*; Refuse Collector and Decontaminator, 642*; 78-b.h.p. Oil-Engined Shunting Locomotive, 772*
— Offices, Technical Committee, Schedule of Examinations and Tests of Welded Drums, 256
Association, British. See *British Association*
— Engineering. See *Institutions*
Aswan Dam, Egypt, Hydro-Electric Scheme, 455
Atco Motor Mowers, 643*
Atkinson, A., on Submerged Outlet Valves at Burrator Reservoir, 114
Atlantic Liner, Standard, 163
— — See also *Steamers*
— Oranje Line Service across, 539
Atlas Scraper & Engineering Co., Four-Wheeled Scraper Wagon, 629*
Atmospheric Pollution, Failure of Transformer owing to, 597
— — Ministry of Health Report, 222
— — Report on Alkali Works, &c., 138
— — and Smoke Abatement, 280
— — by Sulphur, Prevention of, 499
— — See also *Smoke Abatement*
August's Limited, Cement-Sand Preparation Plant, 430*
Austin Motor Co., Ltd., Longbridge Works, 48, 78
Australia, Direct Road Construction by Heat Treatment of Soil (Irvine Process), 39*
— Electricity Supply in Sydney, 133
— Queensland Department of Mines, Annual Report, 766
— — Government Railways Annual Report, 47
— South, Railways, Annual Report, 232
Auto-Arborex Spraying Outfit, 682
Automatic Machine Tools. See *Machine Tools*
— Stokers. See *Stokers*
Automobile Engineers, Institution of, Work of Research Laboratories, 107; Annual Report of Research Committee, 307; Presidential Address, by P. C. Kidner, on Motor-Car Development, 481; Annual Dinner, 482
— See *Motor Cars*
Auxiliary Machinery, Marine. See *Marine*
Aveling-Barford, Ltd., Decontamination Plant, 582*
Avery, W. & T., Ltd., Industrial Visible Weigher and Totaliser, 327*
Aviation. See *Aeronautics*
Axles, Railway, Failure of, 256
— — Motor-Carrying, for "Simplex" Bogie, 189*
— and Spring Assembly for 78-b.h.p. Oil-Engined Shunting Locomotive, 772*.

B.

B.S.A. TOOLS, LTD., Thread-Cutting Attachment for Automatic Screw Machines, 774*
Babcock & Wilcox, Ltd., Explosion of Boiler Tube, 321; Boilers, Drag-Suction Dredger "Fu-Shing," 496*, 579*, 639*; Boiler, Sohwal Power Station, India, 768
Backing Metal for Bearings, Investigations on, 235*, 295*. See LETTER, 299* See 611*.
Bacteriological and Chemical Control of Public Water Supply, 54
Bakelite, Ltd., Reinforcement of Wood with Synthetic Resin, 655
Ball Hardness Tests. See *Hardness* under *Tests* (*Materials*)
Ballantyne, W. H., on the International Conventions Relating to Industrial Property, 715
Ballistic Measurements in Incremental Magnetism, 326, 406*
— — of Rifles, 45
Balloons. See *Aeronautics*
Bamfords, Ltd., Grassland Harrow, 93*; Fertiliser Distributor, 93*
Bamlett, A. C., Ltd., Petrol-Driven Mowing Machine, 32*
Band Conveyors. See *Conveyors*
— Saws. See *Saws* under *Machine Tools*
Bank Convergence in Tidal Estuaries, 61
Bars, Tidal and River Flow Problems, 165
— and Wire, Steel, for Concrete Reinforcement, Specification, 72
"Barbarigo," Italian Submarine, Launch of, 199
Barber-Greene Co., Spiral-Feed Snow Loader, 200*
Barclay, W. B., the Late, 401
Barford, V. G., the Late, 426
"Barlow," H.M. Boom-Defence Vessel, Launch of, 277
"Barmouth," H.M. Boom-Defence Vessel, Launch of, 475
Barometers, National Physical Laboratory, Investigations on, 298
Barron, J. R., on Air-Raid Shelters, 692
Barrow Hæmatite Steel Co., Ltd., Cold-Metal Practice in Fixed Basic Furnaces, 119
Bary, C., on Electricity Supply in Small Commercial Market, 653
Bateson, R. G., on Nomogram Method of Humidity Control, 57*
Batteries. See *Electric*
Battersea Power Station, Flue-Gas Washing at, 499
"Battle" Bombing Aeroplane (Fairey Aviation Co., Ltd.), 139*
Battleships. See *Warships*
Bauxite Mining in Yugoslavia, 685
Beard, J. R., on Design of Coal-Fired Power Stations, 690
Bearings, Ball and Roller, Applications of (Review), 611
— Diesel Engine Crankshaft, Effect of Whirl in, 6, 21*
— for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 550*
— Journal, National Physical Laboratory Investigations on, 64*
— Metals. See *Alloys* under *Metallurgy*
— Motor-Car Engine, Investigation on Temperature, 107, 397
— Needle (Torrington Co.), 132
— Oscillating, Friction of, Report, 170
— Rubber, National Physical Laboratory Investigations on, 107
— Surfaces, Graphoid Layer on, 91*
— White-Metal, Investigation of Stresses in, 235*, 295*. See 611*. See LETTER, 299*
Beaulieu Tide Mill, 446*
Beaver, H., on Industrial Planning, 566
Beckett, J. L., on Garages for Cleansing and Transport Undertakings, 750
Bed Traction and Depths of Streams, 166
Beeny, H. H., on Cutting Fluids and Machine Tools, 546. See *Erratum*, 580
Belgium, Hasselt, Collapse of All-Welded Bridge, 137. See LETTERS, 187, 360
Bell, J. R., Method of River Training, 649
Bellhss, J., the Late, 613
Bellhss & Morcom, Ltd., Turbo-Generators at Cathcart Works, Glasgow, 504*
Belt Conveyors. See *Conveyors*
— Drive, 1,000-b.h.p., for Air Compressor Tests (J. B. Lindley (1931), Ltd.), 140*. See *Addendum*, 191
— Driving, National Physical Laboratory Investigations on, 108*
Bending Machine. See *Machine Tools*
— Moments in Steam Turbine Rotors, 181*
— Vibration of Diesel-Engine Crankshaft, 6, 21*
Benford, Ltd., 10-cub. yd. per Hour Continuous Concrete Mixer, 313*
Bennett, Capt. J. G., on Co-operation in Coal Utilisation Research, 628; on Research and Small Consumers of Coal, 654; on Gas-Temperature Measurement, 683.
Benson, L. E., On Relief of Internal Stress in Castings, 250*
Bent, Q., on Modern Rolling-Mill Practice in America, 580
Bentall, E. H., & Co., Ltd., Root-Crop Gapper, 31*
Beresford, J., & Son, Ltd., Trailer Petrol-Driven Fire-Fighting Pump, 528
Berk, F. W., & Co., Ltd., Contact Sulphuric-Acid Plant, 518*
Berry, H., & Co., Ltd., Hydraulic Draw-Bench, 713
Berthiez, C., the Late, 427
Berthold, Dr. B., on Magnetic and Electric Methods of Testing Materials, 652
Bethlehem Steel Co., Balanced-Cantilever Bridge over Connecticut River, 553*, 676
Bicycles. See *Cycles* and *Motor Cycles*
Biel-Meinisberg Railway, Switzerland, Electric Railcar with "Simplex" Bogie, 188*
Binary Alloys. See *Alloys* under *Metallurgy*
Binder, Tractor (Lanz Tractor Co., Ltd.), 96
Binnie, W. J. E., on Science and Engineering in Ancient Times, 541*
Biological Examination of Large Bodies of Water, 791
Biplanes. See *Aeronautics*
Bird, A. J. G., on Air-Raid Precautions and Water Supply, 625. See *Erratum*, 656
Bird, G., on Automatic Traffic Counter, 613*
Birmingham, British Foundry School, Courses at, 255
— Corporation Electricity Supply, 48, 77; Report on Failure of Electricity Supply, 597
— Gas Works, Hot-Patching of Retorts, 658
Birmingham Railway Carriage & Wagon Co., Ltd., Railway Carriages for London Underground Railways, 51*
— University, Investigations on Incremental Magnetic Measurements, 406*
Bituminous Materials, Road Construction. See *Roads* and *Tar*
Black & Decker, Ltd., ¼-in. Portable Electric Drill, 748*
Blackwall Tunnel under River Thames, Duplication of, 680
Blaisse, B., on Measurement of Temperature in High-Pressure Containers, 683
Blake, E. H., the Late, 132
Blakeborough, J., & Sons, Ltd., Outlet Valves at Burrator Reservoir, 114
Blast Furnaces. See *Furnaces*
Blow-Pipe, Oxy-Coal Gas, Cement-Powder Spray Repairs of Gas Retorts, 658
Blower, Rotary, Zoller Type, for Two-Stroke Diesel Engine (Petters, Ltd.), 11*
Blue Water International Bridge over St. Clair River, 377*
Board of Education Summer School for Engineering Teachers, 107
— of Trade, Examinations for Engineers in Mercantile Marine, 42; Reports, Boiler Explosion Inquiries, 147, 321, 450; Survey of Industrial Development, 164; Regulations for Examinations of Mercantile Marine Engineers, 309; Board of Trade and Marine Engineers, 425; Report on Overseas Trade of United Kingdom, Nationality of Carrying Vessels, 679
Board of Trade. See also *Overseas Trade Department*
Boat, Flying. See *Aeronautics*
— High-Speed, Model Experiments at National Physical Laboratory, 339
— Motor. See *Motor Boat*
— Submarine. See *Warships*
Bober River, Germany, Deichow Hydro-Electric Plant, 36*
Boby, R., Ltd., Two-High Malt Mill, 330*
Bogies for Articulated Railcars for Argentine State Railways, 703*, 756*
— for 4,400-b.h.p. Diesel-Electric Locomotive, 100*
— "Simplex," for Electric Traction (Brown, Boveri & Co.), 188*
— Welded, for London Underground Railway Carriages, 51
— See also *Trucks*
Boiler, Babcock & Wilcox, Drag-Suction Dredger "Fu-Shing," 496*, 579*, 639
— — & Wilcox, Explosion from, 321
— — & Wilcox, Sohwal Power Station, India, 768
— Blast-Furnace Gas-Fired, Delray Power Station, 207*
— Clarence Dock Power Station, Liverpool, 483
— Coverings. See *Heat Insulation*
— Explosion Inquiries, Board of Trade Reports, 147, 321, 450
— Feed Pump. See *Pump*
— — Water. See *Feed* and *Water*
— Furnaces. See *Stoker*
— Gas-Temperature Measurement in, 684
— High-Pressure and Temperature, 174, 451, 452. See LETTER, 505
— Locomotive, American, Front-End Design in, 136
— — Corrosion in, 395
— Marine, Auxiliary, Explosion of, 321
— Plant for Power Stations, 690
— Plate, Intercrystalline Cracking of, Investigations on, 237
— for Power Stations, Development of, 173, 452
— 1,000-lb. pressure La Mont, Cathcart Works, G. & J. Weir, Ltd., 414*, 504*; Tests, 654
— Room, Ship's, Model Tests on Air Supply to, 314*
— Steam (Review), 697
— Uptake, Model Tests of, 314*
— Water-Tube, in United States Navy, 738
— Welded, British Corporation Register of Shipping Rules for, 189
— Yarrow, S.S. "Canton," 458
— — S.S. "Mauretania," 121
— — S.S. "Queen Elizabeth," 383
— See also *Engines and Boilers* in PARAGRAPH INDEX
Bolts, Design of, 144*
Bombs, Damage Possible by, 594
Bombay, Baroda and Central India Railway, Air Compressor with Automatic Control, 760*
Bombing Aeroplane. See *Aeroplane* under *Aeronautics*
Bondy, O., on Collapse of All-Welded Bridge, Hasselt, Belgium, 187. See LETTERS, 137, 360
Bonham-Carter, Air Commodore J. M., on Air-Raid Precautions and Water Supply, 625. See *Erratum*, 656
Books, New, Notes on, 57, 88, 146, 175, 205, 226, 311, 342, 429, 484, 661, 776. See LITERATURE INDEX
— Received, 12, 42, 72, 102, 132, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 560, 588, 616, 646, 676, 704, 734, 762
Booster, Blast-Furnace Gas, Delray Power Station, 207*
Booth, H., the Late, 187
Boreholes. See *Wells*
Boring Machine. See *Machine Tools*
Borough Polytechnic, London, Work of, 734
Borries, Dr. B. von, Electron Microscope, 474*
Bosanquet, C. H., on Wall Effect in Gas-Temperature Measurement, 683
Bottle Washing, Detergents for, 721
Boulder Dam, Model Experiments on Spillways, Penstocks and Outlet Works, 15; Power House, 59*, 179*, 239*, 549*, 608*, 669*, 693*
Bournemouth-London Railway Service, New Rolling Stock for, 177*
Bowen, W., on Temperature-Measuring Instruments, 684
Bowles, G., on Use of Coal at Sea, 214. See 165
Bown, C. H., the Late, 219
Bracken Breaker, Double-Bar (Harrison, McGregor & Co., Ltd.), 30*
— Eradicator (W. Aitkenhead), 94*
Brackenbury, H. L., the Late, 427
Brackets, Propeller-Shaft, Strength of, 695*
Bradford, Dr. S. C., on Mobilisation of Knowledge, 9. See LETTERS, 169, 342; on Documentation Congress at Oxford, 458. See 389
— Technical College, Prospectus, 71
Bragg, Sir W., on Combination Tones in Sound and Light, 593; on Molecular Basis of Strength of Materials, 593
Brake Blocks, Railway, Experiments on Friction of, 719
— Railway, Tests of Coefficient of Friction of, 282
Braking on American Freight Trains, 136
— Regenerative, Japanese Electric Railways, 709
— System, 4,400-b.h.p. Diesel-Electric Locomotive, 100*
— — for London Underground Railway Carriages, 52
Brass Foundry. See *Foundry*
Breakdowns. See *Accidents*
Bressey, Sir C., on Roads and Traffic, 710
Brett's Patent Lifter Co., Ltd., Drop Hammer for Sheet-Metal Aircraft Parts, 52*
Brewers', Maltsters', Distillers' and Allied Traders' Exhibition, Engineering Exhibits, 573
Bricks, Fire. See *Firebricks*; *Refractory Materials*
Bricks, Pavements in United States, Developments in, 233
Bridge, All-Welded, Hasselt, Belgium, Collapse of, 137. See LETTERS, 187, 360
— Arch, Settlement Analysis of, 403*
— Balanced-Cantilever, over Connecticut River, Erection of, 553*, 676
— Cantilever Span, Blue Water International Bridge over St. Clair River, 377*
— Design, Reinforced Concrete (Review), 697
— Hardinge, over River Ganges, River Training at, 650
— Lattice-Steel, for Blast-Furnace Pipe Line, Delray Power Station, 207*
— for Pedestrians, Callender-Hamilton Unit-Construction, Greenford, 342*
— River Training in Connection with, 649
— San Francisco-Oakland Bay, Tests of Riveted Joints, 773
— Sharpness, over River Severn, Wind-Pressure Observations on, 197
— Thousand Islands, St. Lawrence River, 377*
— Waterloo, London, Reconstruction of, 587*
— Wind Pressure on, National Physical Laboratory Investigations, 552
— See also *Aqueduct* and PARAGRAPH INDEX
Briggs, S., & Co., Ltd., Screw Filter Press, 687*
Brighton Technical College, Calendar, 312
Brightside Foundry and Engineering Co., Ltd., 8-in. Double Two-High Hot-Rolling Mill, 19*
Brinell Tests. See *Hardness* under *Tests* (*Materials*)
Bristol Aeroplane Co., Ltd., Endurance Test of Bristol Perseus XIIc Aero Engine, 763
— Steam-Ship Owners' Association, Annual Dinner, 679
Britain. See *Great Britain*
British Agriculture, Electricity Supply for, 498, 607
— — Use of Petroleum Fuels in, 608
— Aircraft Constructors, Society of, Scholarships, 42

British Association (Cambridge Meeting)

Inaugural Proceedings, 251
Presidential Address, by Lord Rayleigh, on Vision in Nature and Vision Aided by Science, 221. See 251
Section G, Engineering:
Programme, 187
Reports of Discussions, 251, 281, 310, 325
Presidential Address, by Prof. R. V. Southwell, on Changing Outlook of Engineering Science, 260. See 249, 251, 299. See LETTER, 530
Relaxation Method for Solution of Poisson's Equation, by D. G. Christopherson, 251.
Relaxation Applied to Calculate the Flow of a Compressible Fluid, by J. R. Green, 251
Transients in Transformers, by F. B. Greatrex, 251
Suppression of Radio Interference Caused by Trolley 'Buses, by J. E. M. Coombes, 252
Some Experiences of Use of Scale Models in General Engineering, by R. W. Allen, 243*, 313*. See 252. See *Erratum*, 284
Moving-Coil Vibrometer, by G. O. Eccles, 263*. See 253
Road Development in Great Britain, by Major F. C. Cook, 378, 435*. See 281
Torque Converter for Motor Cars, by Prof. F. C. Lea, 268*. See 281
Braking of Railway Trains and Tests made to Determine the Coefficient of Friction under Various Conditions, by C. H. Edgecombe, 282
Calculation of Train Running Times, by D. M. Wilcox, 282
Resonance in Relation to Mechanical Vibrations, by Prof. C. E. Inglis, 282
Vibration in Ships, by Dr. F. H. Todd, 345*, 375*. See 283
Vibration in Aircraft, by Major B. C. Carter, 256*, 285*. See 283
Trend of Instrument Design, by C. C. Mason, 317*. See 310
Settlement Analysis of Engineering Structures, by A. W. Skempton, 403*. See 310
Stresses in Welded Pipes with Internal Pressure and End Thrust, by S. J. Palmer, 289*. See 310.
Joint Discussion (with *Section A, Mathematics and Physics*) on Magnetic Measurements, with Special Reference to Incremental Conditions, 325
Recent Advances in Soft Magnetic Materials, by C. E. Webb, 488*. See 326
Instruments for Measurement of Incremental Permeability, by D. C. Gall, 348*. See 326
Ballistic Measurements in Incremental Magnetism, by Dr. L. G. A. Sims and J. Spinks, 406*. See 326
Harmonic Power in Iron Testing, by J. Greig and J. E. Parton, 431*. See 326
Relative Measurements on Rings and Cores in Incremental Testing, by E. V. D. Glazier and J. E. Parton, 573*. See 326
Visits and Excursions, 253
British Automotive and Chemical Industries, Ltd., "Artus" Milling-Cutter Spacers, 517
— Broadcasting Corporation, Aberdeen Broadcasting Station, 332; Development of Television by, 565
— Cast Iron Research Association, Annual Report, 744; Annual Luncheon, 744
British Central Electrical Co., Ltd., Electric Hand-Lamp with Gripping Tongs, 206*
— Coal Utilisation Research Association, Work of, 629; Presidential Address, by Sir E. Williams, on Work of Association, 740
— Columbia, Mineral Wealth of, Report, 195
British Conway Shovels, Ltd., Shovelling and Loading Machine for Underground Work, 545*
— Corporation Register of Shipping and Aircraft, Rules for Welded Pressure Vessels, 189

British Electrical and Allied Manufacturers' Association, Annual Dinner, 620
— Engineers' Association, Presidential Address, by Lieut.-Col. Lord Dudley Gordon, on Engineering Industrial Organisation, 483; The Rearmament Programme and Export Trade, by Sir L. W. Smith, 708
— Foundry School, Birmingham, Courses at, 255
— Foundrymen, Institute of, Relief of Internal Stress in Castings, by L. E. Benson and H. Allison, 230*
British Insulated Cables, Ltd., Double-Face Moulding Machine, 212*; Continuous Spot Welder, 213*
British and Irish Steam Packet Co., Experiments on Noise Reduction in Ships of, 766
— Iron and Steel Federation, Statistics of Iron and Steel Industries, 618
— Navy. See *H.M.* under *Warships*
— Non-Ferrous Metals Research Association, Annual Report and Lunch, 28; Report on Nickel-Silver, Survey of Published Information, 259
— Railways. See *Railways*
— Shipbuilding. See *Shipbuilding*
— Shipping. See *Shipping*
— Standards Institution. See *Standards*
— Steelwork Association, Air-Raid Shelter Construction, Models, 335, 420; Pamphlets on Steel for A.R.P. and Everyman Trench Shelters, 420
British Thermostat Co., Ltd., Automatic Expansion Valve for Refrigeration Plant, 311*
British Thomson-Houston Co., Ltd., Electro-Hydraulic Thrustor for Conveyor Installation, 25*; Rugby Works, 48, 78; Exhibits at Glasgow Exhibition, 210*; Mercury-Arc Rectifier Panels, 210*; Vertical Plugging Ring-Main Equipment, 210*; Ignitron Loading Equipment for Traction Substations, 428*; Investigations on Noise from Transformers, 521*; Capacitor Pilot-Motor, Single-Phase Three-Phase Conversion System, 531
— Trade. See *Trade*
— Waterworks Association, Plymouth Meeting, Presidential Address, by H. M. Medland, on Public Water Supply Problems, 113; Water Wastage, Causes, Detection and Prevention, by J. A. Rodwell, 114; The Dartmoor Catchments, by H. Worth, 114; Submerged Outlet Valves at Burrator Reservoir, by A. Atkinson, 114
— and World Shipping, Statistics of, 679
Broadley, J. B., Ltd., Explosion from Steam-Heated Spreading Machine, 450
Bromley-by-Bow, Tide Mills at Three Mills Distillery, 445*
Bronze Castings, Relief of Internal Stress in, 230*
Brookhirst Switchgear, Ltd., "Isofuse" Switch, 662*; Cam-Operated Switch for Machine Tools, 749*
Brookman, R. S., Ltd., "Hydraulectric" Mortising Machine, 397*; Automatic Multi-Spindle Dovetailing Machine, 398*
Broom & Wade, Ltd., Pneumatic Chipping Hammer, 626
Broughton Ferry and District Steam Laundry, Ltd., Everdur-Alloy Hot-Water Storage Tank, 160
Brown, Boveri & Co., Ltd., 300-kW. Generator for Diesel-Electric Locomotives, 48; Electrical Equipment, 4,400-b.h.p. Diesel-Electric Locomotive, 100*; "Simplex" Bogie for Electric Traction, 188*; Control Gear for Diesel Railcar, 622, 630*
Brown, C. A. C., on Supply of Electricity for Agriculture, 607
Brown, D., & Sons (Hudd), Ltd., 100-h.p. Radicon Worm-Reducing Gear, 655*
Brown, Prof. E. W., the Late, 160
Brown, J., & Co., Ltd., Launch of S.S. "Queen Elizabeth," 381*, 425*, 646
Brown, R. D., on Engineers and the Body Politic, 452
Brown & Ward, Ltd., 4-in. Four-Operation High-Speed Automatic Lathe, 714*
Bruce, Peebles & Co., Ltd., 130-h.p. Slip-Ring Induction Motor, 625
Brushes, Carbon, for Electrical Machines, Specification, 436
Buchan, Dr. S., on Underground Water Supplies for County of London, 713
Buchl Syndicate, Superchargers for Marine Diesel Engines, 247
Buckton Vale Works, Stalybridge, Explosion of Cast-Iron Economiser, 147
Buenos Aires, Ferrocarril Provincial, Service Results with 270-b.h.p. Diesel-Electric Railcars, 461
— Ayres Great Southern Railway, 900-h.p. Diesel-Electric Locomotives, 48
Buffalo-Springfield Roller Co., Three-Axle Tandem Motor Road Roller, 56*
Buildings, Air-Raid Protection for, 569, 572, 594
— Club, International, London, 219
— Code, Uniform, for United States and Canada, 385. See *Addendum*, 503
— Construction. See also *Ferro-Concrete* and PARAGRAPH INDEX
— Hot-Air Heating of, 682
— Materials, Experiments on Freezing of, Report, 291
— — Thermal Conductivity of, National Physical Laboratory Investigations on, 595*
— Noise Abatement in, Investigations on, 667
— Research Board, Annual Report, 105
— — Station, Garston, Report on Stresses in Reinforced-Concrete Piles, during Driving, 87; Investigations at, 105; Experiments on Freezing of Building Materials, 291; Investigations on Settlement Analysis of Engineering Structures, 310, 403*
— Steel-Frame, Settlement Analysis of, 403*
— Trades Exhibition, Olympia, 371*, 397*, 442*, 528*
— Vibrations of, Records by Moving-Coil Vibrometer, 253, 263*
— Wind Pressure on, Investigations on, 197
Bulkheads. See *Water-Tight Subdivision*
Bullgrader with Adjustable Blade (Ruston-Bucyrus, Ltd.), 371*
Bureau of Mines. See *United States*
Bureau of Standards. See *United States*
Burma and India, Law Relating to Electrical Energy in (Review), 167
Burner, Blast-Furnace Gas, Delray Power Station, 207*
— for Gas, Aeration Test, 569
— — Thermostatically-Controlled, Selas Type (T. Thorp & Co., Ltd.), 613*
— Oil Fuel. See *Oil Fuel*
Burrator Reservoir, Submerged Outlet Valves at, 114
Burstall, Prof. A., on Mobilisation of Knowledge, 169. See LETTERS, 9, 342; on Engineering Curriculum, 530. See 249, 251, 260. See LETTER, 299
'Bus-Bar-Zone Protective System, Dualock, 329*
Business Administration for Engineers (Review), 167
— and Engineering, English in (Review), 640
— Management, Training for, Report, 189
— Problems, Some Modern (Review), 209
Buska, Dr. E., Electron Microscope, 474*
Butadiene, Production of Synthetic Rubber from, 564
Butane Tanks, Steel, Protection by Sprayed-Zinc Coating, 657*

C.

CABLES. See *Wire Ropes* and *Electric*
Cadoux, Etablissements, Durisol Plywood, 306
Cairns, Major T. Russell, on Shipping and Trade, 511
Calender Bowl, Resilient, Stresses in End Plate, 171*
California University, Investigation on Transportation of Sand in Pipe Lines, 158
"Calipso," Italian Torpedo Boat, Launch of, 219
Calit Insulating Products (United Insulator Co., Ltd.), 598
Callender, Sir T. O., the Late, 675
Callender's Cable & Construction Co., Ltd., Unit-Construction Footbridge, Western Avenue, Greenford, 342*; Unit-Construction Transportable Aeroplane Shed, 727*
Calliper Gauge, Continuous, Oemichen Automatic, 115*
Calorimeter, Gas, "Thermeter" Recording (Cutler-Hammer, Inc.), 345*
Cambridge Instrument Co., Ltd., Vibrograph for Aircraft, 285*; Developments in the Design of Instruments by, 310, 317*
— Meeting, British Association. See *British Association*
Cammell Laird & Co., Ltd., Launch of H.M. Submarine "Thetis," 58; Launch of S.S. "Mauretania," 121*, 163, 168*. See *Addendum*, 218; Launch of H.M. Submarine "Trident," 705
Campbell, D. F., on Electric Furnaces in European Steelworks, 539
Canada, Gas Industry in, Developments in, 109
— Ontario Hydro-Electric Commission, Annual Report, 164
— Report, Mineral Wealth of British Columbia, 195
— Uniform Building Code for, 385. See *Addendum*, 503
— and United States, New International Bridges between, 377*
Canadian Bridge Co., Thousand Islands Bridge System, 377*
— Department of Mines, Report on Limestones of Ontario, 305
— Engineering Standards Association. See *Standards*
— Mineral Industry in 1937, Report, 373
Canal, Grand Union System, and Oranje Line Transatlantic Service, 539
— Rhine-Main-Danube, 118*
— See also PARAGRAPH INDEX
Cancelling Machine, Stamp, Mount Pleasant Sorting Office, 523*
Canfield, Dr. R. H., on Non-Destructive Examination of Steel, 141
Cannel Industry, Position of, 106
Canning of Food, Investigations on, 308
Cannon, Cast-Iron, Manufacture of, 632
Cantiere Navale Ansaldo, Banana-Carrying M.S., "Ramb I," 216*
— Riuniti Dell, Adriatico, Banana-Carrying M.S. "Ramb IV," 216*
Cantilever Bridge. See *Bridge*
"Canton," S.S., 458*
Capacity. See *Electric*
Capstan Lathe. See *Lathe* under *Machine Tools*
Carbon, Active, Production from Bituminous Coal, Report, 408
— Monoxide Discharge from Motor Vehicles, 300
— Monoxide and Hydrogen, Methane Synthesis from, 603
Carbonyl Process for Production of Pure Iron, 489
Cardiff, Ely Paper Works, Failure of a Blank Flange, 147
— Engineering Exhibition, 625
— Royal Agricultural Show, 29*, 65*, 93*
— University College, Experiments on Freezing of Building Materials, 291
Cargo Fleet Iron Co., Cold-Metal Practice in Fixed Basic Furnaces, 119
— Steamers. See *Steamers*
"Carnarvon Castle," M.S., Reconditioning, 88*
Carpenter, Dr. C. C., the Late, 331
Carriages, Railway, Diesel-Driven, Articulated, for Argentine State Railways, 702*, 756*
— — Diesel-Driven, Controls and Transmission for, 621, 630*
— — 270-b.h.p. Diesel-Electric, Service Results, 461
— — Electric Railcar with "Simplex" Bogie, (Brown, Boveri & Co.), 188*
— — "Flying Scotsman" Trains, London & North Eastern Railway, 41*
— — for London-Harwich Service, 456*
— — London Underground Railways, 51*
— — Southern Railway, Bournemouth-London Service, 177*
— — Southern Railway, Portsmouth-Horsha Line, 20
Carron Company, History of, 247; Worm-Geared Electric Winch, 515*
Cars, Motor. See *Motor Cars*
— Rail. See *Carriages, Railway*
Carter, Major B. C., on Vibration in Aircraft, 256*, 285*. See 283
Cartwright, K. St. G., on Dry Rot, 463
Casing for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 608*
Cass Technical Institute, Courses at, 312
Cassel Salt-Bath, Gas-Fired Furnace (Imperial Chemical Industries, Ltd.), 152*
Cast Crankshaft, National Physical Laboratory Investigations on, 63
— Iron Castings, Specification, 13
— — and Ferodo, Coefficients of Friction, 282
— — High-Duty, Report on Research on, 742, 745*
— — "Loded," Properties of, 710
— — Pipes, Specification, 393
— — Pulley and Leather Belt, Coefficient of Friction, 108*
— — Relief of Internal Stress in, 230*
— — Research Association, British, Annual Report, 744; Annual Luncheon, 744
— — Straight Edges, Draft Specification, 114
Castings, Copper-Steel, Investigations on, 548, 581
— Internal Stress in, Relief of, 230*
— for Reduction Gearing, S.S. "Queen Elizabeth," 383*
— Steel, Manufacture by Thermoloys Process, 110
Castlecary Railway Accident, Report, 16
Catalogues, 89, 120, 148, 190, 218, 258, 292, 304, 352, 380, 391, 464, 548, 590 (*Erratum*), 604, 633, 721, 750. See PARAGRAPH INDEX
Cathode-Ray Oscilloscope for Determining Air-screw Vibration, 288*
— — Oscillographs, Developments in, 318
Cavitation Investigations at National Physical Laboratory, 339, 370
Cawnpore, India, Imperial Institute of Sugar Technology, Experiments on Molasses for Road-Making Material, 321
Cedar, African, for Pencils, Report, 292
Ceiling Roses, Two and Three-Terminal, Specification, 647
Cells. See *Electric*
Cements, Chemistry of, Symposium on, 195
— Kilns, Dust and Gas Emission from, 138
— Sand Preparation Plant for Foundry (August's, Ltd.), 430*
— United States, Specifications for, 360
— See also *Concrete* and PARAGRAPH INDEX
Centenary of F. C. Accum, 96
— of London & Birmingham Railway, 368, 594
— Dinner, London Midland & Scottish Railway, 594. See 368
— of Dr. W. H. Maw, 739
— of Sir W. H. Perkin, 650
— of T. Robinson & Son, Ltd., 246
Central Advisory Water Committee, Report, 77
— Electricity Board, Hams Hall Transformer and Switching Station, 78; Report on Failure of Electricity Supply at Birmingham, 597
— Station. See *Power Station*
Centrifugal, Electrically-Driven (Watson, Laidlaw & Co., Ltd.), 515*
— Pumps. See *Pumps*
Centrifuges for Drying Coal, 460
Ceylon Government Railway, Administrative Report, 368
Change-Speed Gear. See *Gear; Motor-Car Details*
Channel, Experimental, Federal Hydraulic Laboratory, Zürich, 4*
Charcoal as Fuel for Producer-Gas Lorries, 654
— as Motor Fuel, 288, 299
Charing Cross Underground Railway Accident, Report, 396
Chase, H., on Die-Casting Practice in United States, 293*, 411*
Chatley, Dr. H., on River Flow Problems, 61, 165, 223, 241; Drag-Suction Dredger "Fu-Shing," 495*, 577*, 638*; on River-Control Problems, 579, 638, 681*, 740, 754; on Engineering Aspects of Air-Raid Protection, 594; on Status, Qualifications and Remuneration of Engineers, 616
Chelmsford, Marconi College, Summer School, 275
Chelsea School of Metallurgy, Prospectus, 312
Chemical and Bacteriological Control of Public Water Supply, 54
— Congress, International, I.G. Farbenindustrie High-Pressure Hydrogenation Process, by M. Pier, 774
— Engineers, Institution of, Memorandum on Training of Chemical Engineer, 618
— — Society of, Elimination of Sulphur from Flue Gases, by Dr. R. Lessing, 499; Perkin Memorial Lecture on Sir W. Perkin and Coal-Tar Dye Industry, by Dr. H. Levinstein, 651
— Industry, Measurement of Gas Temperatures in, 684
— Research Laboratory, Teddington, Investigation on Corrosion of Coal-Tar Stills, 333, 396
— Works, Safety Rules for Use in, 276
Chemistry of Cements, Symposium on, 195
— of Combustion, 566
— of Corrosion. See *Corrosion*
— Research Board, Report for 1935-37, 395
— Rubber, Modern (Review), 92
— See also PARAGRAPH INDEX
Chesterfield Tube Co., Ltd., Heavy Weldless-Steel Tube Plant, 713
Chilgrove, Sussex, Rainfall and Water Level at, 714
Chimney, Steel, Self-Supporting Cathcart Works, Glasgow, 414*
China, Soil Erosion and River Control in, 579, 638, 681*, 740, 754
Chinese Junks at Science Museum, 566
Chlorination of Public Water Supply, 54
Christopherson, D. G., on Relaxation Method for Solution of Poisson's Equation, 251
Chromium in Cast-Iron, Effect of, 746
— Electro-Deposited, Structure of, 624
— Ore Mining in Yugoslavia, 685
Chronometers, National Physical Laboratory Tests of, 298
Chuck. See *Machine Tools*
Churcher, B. G., on Magnetic and Electric Methods of Testing Materials, 652
"Circe," Italian Torpedo Boat, Launch of, 219
Circular Saws. See *Saws* under *Machine Tools*
Circulating Pumps. See *Pumps*
City and Guilds of London Institute, Annual Report, 364
Civil Aerial Transport. See *Aeronautics*
Civil Engineers, Institution of:
Benevolent Fund Homes, Haywards Heath, 47
Code for Design and Construction of Reinforced-Concrete Structures for Storage of Liquids, 289
Report on Deterioration of Structures in Seawater, 359
Presidential Address, by W. J. E. Binnie, on Science and Engineering in Ancient Times, 541*
Principles of River-Training for Railway Bridges and their Application to Case of Hardinge Bridge over Lower Ganges at Sara, by Sir. R. R. Gales, 649
Sir Dugald Clerk Memorial Lecture, by W. A. Tookey, on Work of Sir D. Clerk, 730
Manchester and District Association: Engineers and the Body Politic, by R. D. Brown, 452
Clarain, Investigations on, 485
Clarence Dock Power Station, Liverpool Corporation, Extension of, 483
Clarke-Jones, N., on Modern Portable Gas Producer, 738
Clays, Fire. See *Firebricks; Refractory Materials*
— Foundation, Settlement of Structures on, 310, 403*
Cleaning Plant for Grain, 572
Cleansing, Public, Ministry of Health Report, 222.
— Street, and Refuse Collection, Cost of, Report, 483
— Vehicles, Municipal, Garages for, 750
Clerk, Memorial Lecture on Work of Sir D. Clerk, 730
Cleveland Iron Prices. See *Metal-Price Diagrams*
— and the Northern Counties, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 534, 561, 589, 617, 646, 677, 705, 735, 763. See PARAGRAPH INDEX
Climatic Change and River-Control Problems, 638
— — See also *Meteorological*
Clocks, High-Precision, National Physical Laboratory Investigations on, 297
Club, Building, International, London, 219
Clutch, Friction, Dry, Multiple-Disc (Platt, Brothers & Co., Ltd.), 115*
Clyde, River, and Glasgow Harbour, 109
Coaches, Railway. See *Carriages*.
Coachwork, Railway, Double End-Tenoning Machine (T. Robinson & Son, Ltd.), 745*
Coal, Bituminous, Destructive Distillation of, Investigations on, 485
— — Gasification of, in Water-Gas Generator, Experiments on, 603
— — Production of Active Carbon from, Report, 408
— — Strip Mining in United States, 227*
— Cannel, and Oil-Shale, Conference on, 40, 106
— Consumption in Great Britain, 33
— — See also *Trials*
— Convention, National, Development of Producer-Gas Propulsion, by the Duke of Montrose, 654; What Research Can Do for the Small Consumer of Coal, by Capt. J. G. Bennett, 654; Practical Smoke Abatement with Solid Fuel, by A. Marsh, 654
— Crucible Swelling Test for, Specification, 473
— Cutting Machine, Explosion from, 367
— for Domestic Purposes, 682
— — Use of, Research and, 654
— Drying and Dewatering of, Report, 460
— Dust Explosion, Investigation by Safety in Mines Research Board, 718
— Economy. See *Fuel Economy; Pulverised Coal*
— Fired Power Stations, Design of, 690
— Fuel Research Board's Investigations on, 765
— as Fuel for Ships, 165. See LETTER, 214
— Gas. See *Gas*
— Low-Temperature Carbonisation, Morgan Rotary-Retort for, Tests of, 113*
— Mine. See *Colliery*
— Oil from, in Germany, 517, 775
— in Open Grates, Results Attained with, 717
— Production in Canada, 1937, 373
— for Production of Free-Burning Coke, 659
— Pulverised. See *Pulverised Coal*
— for Ship Propulsion, Report, 165. See LETTER, 214
— Slurry, Flocculation Treatment of, 687*
— Survey, Work of, 765
— Tar Dye Industry and Sir W. H. Perkin, 651
— — and its Products, Sampling of, Specification, 341
— — Stills, Corrosion of, Report, 333, 396
— Utilisation Council, National Coal Convention, 654
— — and Distribution in United States, 424
— — Research Association, British, Presidential Address, by Sir E. Williams, on Work of Association, 740
— — Research, Co-operation in, 628
— World Output of, 1937, 620
— See also PARAGRAPH INDEX
Coatings, Zinc, Sprayed, for Steel-Surface Protection, 657*
Cobb, J., Record with Railton Motor Car, 281, 397
Cobb, Prof. J. W., on Influence of Furnace Atmosphere on Scaling of Steel, 570
Cockburns, Ltd., Stop and Safety Valves for Boilers of S.S. "Mauretania," 123. See *Addendum*, 218
Coefficient of Friction, Leather on Cast Iron, 108*
— — of Railway Brakes, 282
Coenvre, R. Le, on Light Alloys in Aircraft Construction, 538

Cofferdam, Steel Sheet Piling, Waterloo-Bridge Reconstruction, 588*
Coke, Free-Burning, Production in Continuous Gas Retorts, 659
— as Motor Fuel, 299
— in Open Grates, Results Attained with, 717
— A Problem of Fuel Refinement (Review), 640
— Production of Methane from, 602
Coking, Low-Temperature, of Coal. See *Coal*
Cold-Metal Practice in Fixed Basic Open-Hearth Furnaces, 119
— Storage. See *Refrigeration*
Coldair Refrigerator for Optical Works, 655
Collecting Vehicle, Refuse, with Compressing Gear (J. I. Thornycroft & Co., Ltd.), 642*
— — Refuse, Compression (Transport Engineering, Ltd.), 643*
Collector, Refuse, Bin-Tipping (Walker Brothers (Wigan), Ltd.), 642*
— — and Decontaminator (Associated Equipment Co., Ltd.), 642*
College. See *Education*
Colliery, Chief Inspector of Mines' Report, 620
— Electricity in, Report for, 1937, 367
— Firedamp Recorder for, 718
— Fushun-Ryuho, Mukden, Tower-Type Winding Plant, 671*
— Lighting. See *Safety Lamps*
— Safety in Mines Research Board Report, 718
— Secretary for Mines' Report on, 620
— Steel Safety Prop for (W. Sylvester, Ltd.), 625
— Use of Electricity in, 730
— Winding. See *Winding*
— See also *Mines* and *Coal*
Collisions. See *Accidents*
Colloids in Effluents, Flocculation Treatment of, 687*
Colorado, Denver Sewage System, Self-Supporting Horizontal Pipe-Line Span, 465*
— River, Boulder Dam, Model Experiments on Spillways, Penstocks, and Outlet Works, 15; Power House, 59*, 179*, 239*, 549*, 608*, 669*, 693*
Colorimeter, Six-Colour, National Physical Laboratory Investigations on, 669
Colvilles, Ltd., Cold-Metal Practice in Fixed Basic Furnaces, 119
Comb, Grass (R. A. Lister & Co., Ltd.), 67*
Combined Stress. See under *Tests* (*Materials*)
Combustion, Chemistry of, 566
— and Coal Utilisation Research, 628
— Flames and Explosions of Gases (Review), 455
— See also *Fuel; Gases*
Commercial Aviation. See *Aeronautics*
— Motor Cars. See *Motor*
Commerce. See *Trade*. See also *Industries and Commerce* in PARAGRAPH INDEX
Commonwealth. See *Australia*
Companies. See PARAGRAPH INDEX
Comparator, End-Gauge, High Sensitivity, 183*
— Stereoscopic (Cambridge Instrument Co., Ltd.), 320
Compound Stress. See *Tests* (*Materials*)
Compressed-Air Tools. See *Machine Tools*
— — See also *Pneumatic*
— Gas Cylinders. See *Gas*
Compressor, Air. See *Air Compressor*
Concrete, Foamed-Slag, Investigations on, 106
— Fresh, Vibration in, Apparatus for Measurement of, 232*
— Light-Weight, Thermal Conductivity of, National Physical Investigations on, 595*
— Mixers at Building Trades Exhibition, 444
— — 10-cub. yd. per hour Continuous (Benford, Ltd.), 313*
— Pavements, Use of Joints in, 664
— Piling, Reinforced (Review), 455
— Pipes, Hume Concussional-Spun (J. Ellis & Sons, Ltd.), 557*
— Reinforced. See *Ferro-Concrete*
— for Road Construction, 435
— in Sea Water, Deterioration of, 360
— See also *Ferro-Concrete* and PARAGRAPH INDEX
Condensers, Surface, Weir Regenerative, S.S. "Queen Elizabeth," 383
Conductivity of Metals, Thermal, National Physical Laboratory Investigations on, 594
Conference, International, of Naval Architects and Marine Engineers. See *Naval Architects and Marine Engineers, International Conference of, London*
— on Oil-Shale and Cannel Coal, 46, 106
— Oxford, Association of Special Libraries and Information Bureaux. See *Libraries, Special, and Information Bureaux, Association of*
— — International Federation for Documentation, 50, 389, 707. See LETTER, 458
— World Power. See *World Power Conference*
Congress, International Chemical. See *Chemical Congress, International*
— — Engineering, Glasgow. See *Engineering Congress, International, Glasgow*
Connecticut State Highway Commission, Erection of Balanced-Cantilever Bridge over Connecticut River, 553*, 676
Conservation of Coal. See *Coal; Fuel*
Consett Iron Co., Ltd., Hot-Metal Practice in Fixed Furnaces, 24
Constable, Hart & Co., Ltd., Apsley Railway Station, 402*
Consulting Engineers, Association of, Annual Dinner, 739
Contactor, Greenly Inductive Relay, 450*
Container, Compressed-Gas, Welded, National Physical Laboratory Investigations, 64, 238
— Glass, Detergents for Washing of, 721
— High-Pressure, Measurement of Temperature in, 683
— Refuse, Self-Sealing Dustless (Shelvoke & Drewry, Ltd.), 643*
Continental Machine Specialities, Inc., Contour Sawing Machines, 83*
Contract Conditions, London County Council, 74
— 12, 42, 72, 102, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 562, 588, 616, 646, 704, 734, 762
Control Board, Diagram, for Power Stations (A. Reyrolle & Co., Ltd.), 328*
— Electro-Pneumatic, for 4,400-b.h.p. Diesel-Electric Locomotive, 101*
Control Gear, Automatic, for Air Compressor (J. B. Lindley (1931), Ltd.), 760*
— Gears, 14-ft. Butterfly Valves, Boulder Dam Power House, 239*
— Lockheed, for H.M. Diesel-Engined Picket Boat, 142*
— Room, Drag-Suction Dredger "Fu-Shing," 639*
— System for Diesel Railcars, 621, 630*
— — Governor, 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 693*
— Works and Dams (Review), 182
Controllers, Electric Motor. See *Motors, Electric*
— Speed, for Motor Vehicles (R. A. Rothermel, Ltd.), 127*
Converters, Contact Sulphuric-Acid Plant, 518*
Conveying Machinery (Review), 91
— Systems, Mount Pleasant Sorting Office, London, 353*, 437*, 523*, 635*, 698*
Conveyor Installation, Selective, Morris Engine Works, Coventry, 25*
— Screw, for Continuous Concrete Mixer (Benford, Ltd.), 313*
Cooch & Son, Hand-Operated Potato-Sorting Table, 94*
Cook, Major F. C., on Road Development in Great Britain, 378, 435*. See 281
Cook, H., on Relay System of Refuse Collection, 624
Cook, S. S., on Sir Charles Parsons and Marine Propulsion, 680
Cooking Equipment, Train for London-Harwich Service, 456*
— Stoves, Swedish, 682
Coolers, Gas, Contact Sulphuric-Acid Plant, 518*
Coombes, J. E. M., on Radio Interference Caused by Trolley 'Buses, 252
Cooper, Pegler & Co., Ltd., Portable Power-Driven Spraying Outfit, 682
Cooper-Stewart Engineering Co., Ltd., Petrol-Driven Shearing Machines, 67*
Copper Alloys. See *Bronze; Gunmetal;* and *Alloys* under *Metallurgy*
— Atmospheric Corrosion of, 396
— in Cast Iron, Effect of, 746
— Development Association, Driving Tests of Copper Earthing Electrodes, 456
— Mining in Lake District, 81
— — in Yugoslavia, 685
— Prices. See *Metal-Price Diagrams*
— Production in Canada, 1937, 373
— Steel Castings, Investigations on, 548, 581
— See also *Metallurgy*
Corby Steel-Tube Plant, Electrical Equipment of, 460*
Cork, Elastic Properties of, 125
Cornwall, Quarry Plant at St. Austell, 596*
Corrosion, Chemistry Research Board's Investigations on, 395
— of Coal-Tar Stills, Report, 333, 396
— Fatigue Tests, Metals for Aircraft Construction, 63*
— Fretting, National Physical Laboratory Investigations on, 63
— of Galvanised Iron Wire, Investigations on, 27, 54*
— of Iron and Steel in Sea Water, 360
— of Machine Tools, Investigation of, 546. See ERRATUM, 580
— of Metals by Moorland Water, 114
— Prevention by Sprayed-Zinc Coating, 657*
— Products of Iron, Radiological Examination of, 624
Cosford, Staffordshire, School for Aircraft Apprentices, 139
Costs and Tariffs in Electricity Supply (Review), 640
Coste, M., on Combined Operation of Thermal and Water-Power Stations, 431*. See 350*
Cotal Transmission Gear for Diesel Railcar, 622, 632
Cottrell Electrostatic Precipitator for Blast-Furnace Gas, Delray Power Station, 207*
Counter, Traffic, Automatic, 613*
Counting System for Road Traffic, 58
Countryside, Preservation of, Report on, 396
Coupling, Automatic, for London Underground Railway Carriages, 52
— Hydraulic, Vulcan-Sinclair, for Diesel Railcars, 622, 632
— See also *Clutch*
Coventry, Morris Engine Works, Selective Conveyor Installation, 25*
Coverings, Non-Conducting. See *Heat Insulation*
Cracks, Magnetic and Electrical Methods of Detecting, 653
Cracking of Bearing Metals, Investigations of, 295*. See 235*, 611*. See LETTER, 299*
— Intercrystalline, of Boiler Plate, Investigations of, 237
Craftsmen, Supply and Training of, 98
Cranes at Building Trades Exhibition, 399*, 444
— "Giraffe" (Liner Concrete Machinery Co.), 444
— 1-ton Mobile (T. C. Jones & Co., Ltd.), 399*
— Revolving, on Pontoon, Montreal Harbour Developments, 69*
— Wire Ropes for, Specification, 494
— See also *Gantry; Hoists*
Crankshaft, Cast-Iron, Investigations on, 743
— — National Physical Laboratory Investigations on, 63
— Design and Notch Effect, 144*
— Diesel-Engine, Whirl of, Investigations of, 6, 21*
Creep Investigations at National Physical Laboratory, 64, 237
— — Steel at 500 deg. C., 146*
Crisis, International, and Engineers, 423, 479. See 250, 395. See LETTERS, 457, 530
— — and Road Transport, 591
Crompton Parkinson, Ltd., 166-h.p. Electric Motors, 51
Crosby, S. B., on Safety Regulations for United States Ships, 116
Cross-Channel Services from Passengers' Viewpoint, 598
Croydon Polytechnic, Investigations on Mixture of Saturated Steam and Air, 674*
Crude-Oil Engines. See *Engines, Oil*
Cruisers. See *Warships*
Crusher, Stone (Goodwin, Barsby & Co., Ltd.), 597*
Crystals, Single, Magnetic Properties of, Investigations on, 326, 488*
Crystalline Structure of Metals. See *Metallography; Micro photographs*
Cudworth, J. R., on Dewatering and Drying of Coal, 460
Cultivator, 3-h.p. Petrol-Driven (Lloyds & Co. (Letchworth), Ltd.), 682
— with Photo-Electric Cell Control (A. Ferté), 26
Cunard White Star, Ltd., Liner "Mauretania," Launch of, 121*, 163, 168*. See *Addendum*, 218; S. S. "Queen Mary," Record Crossings, 223; Liner S.S. "Queen Elizabeth," Launch, 381*, 425*, 646
Cunningham, G., on Reduction of Industrial Accidents, 195
Current, Electric. See under *Electric*
— Tidal, in Estuaries, 165
Curtiss-Wright Corporation, Curtiss-Wright "20" Passenger Aeroplane, 748
Cuts, Dredged, in Rivers, Stability of, 754
Cutler-Hammer Inc., "Thermeter" Recording Gas Calorimeter, 345*
Cutter, Grass, Collector, Shanks' (Harvest Saver & Implement Co., Ltd.), 65*
— Milling. See *Milling* under *Machine Tools*
Cutting Fluids, Functions of, 659*
Cycle, Motor. See *Motor Cycle*
— Screw Threads, Specification, 773
Cyder-Making Machinery, French, 26
Cylinders, Engine, High-Duty Cast Irons for, 742, 746*
— Gas. See *Gas*
— Torsion of, St. Venant's Theory, 413
— Wear in Motor Car Engines, Researches on, 107, 397
Cyclotron and Cyclotron Models, Exhibition of, 309
Czechoslovakia, Masaryk Academy of Work, Steam Research at, 1, 34*

D.

DA VINCI, Leonardo, Writings and Inventions of, 543
Dagenham, Welded Waterless-Type Klonne Gasholder at, 129*
Daimler-Benz 800-1,150 h.p., Twelve-Cylinder Engine, "Graf Zeppelin," 754*
Dalrymple-Hay, Sir H., and W. T. Halcrow, Reconstruction of King's Cross Underground Station, 265*, 296*, 386*. See *Erratum*, 444
Dalton's Law and Pressure of Mixed Gases, 674*
Dam, Aswan, Egypt, Hydro-Electric Scheme, 453
— Boulder, Colorado River, Model Experiments on Spillways, Penstocks and Outlet Works, 15; Hydro-Electric Scheme, 59*, 179*, 239*, 549*, 608*, 669*, 693*
— and Control Works (Review), 182
Dampers, Vibration, for Aircraft, 258
— — for Ships, 347*
Danckaerts Woodworking Machinery, Ltd., Six-Cutter Planing and Moulding Machine, 397*
Danube-Main-Rhine Canal, 118*
Darlington Forge, Ltd., Castings for S.S. "Mauretania," 121*
Dartmoor Catchments and Water Supply, 114
Davey, H. J., on Collapse of All-Welded Bridge at Hasselt, Belgium, 360. See LETTERS, 137, 187
Davey, Paxman & Co. (Colchester), Ltd., 1,000-h.p. Sixteen-Cylinder Marine Oil Engine, 111*
Davidson, Lieut.-Col. J. R., Metropolitan Water Board's Laboratories, 502*
Davidson, Dr. W., on Results with Solid Fuels in Open Grates, 717
Davis, C. A., Self-Supporting Horizontal Pipe-Line Span, 465*
Davy and United Engineering Co., Ltd., Vertical Billet-Piercing Press, 713
Dawson, Sir P., the Late, 401*
— Welded Joint for High-Pressure Steam Pipe, 505*
De Havilland Aircraft Co., Ltd., Gipsy Twelve Aero Engine, 48*; Drop-Stamping Plant for Sheet-Metal Aircraft Parts, 52*
De Leiris, H., on Strength of Materials in Relation to Shipbuilding, 6
Deacon, V. H., on Hot-Patching of Gas Retorts, 658
De-Aerator, "Optimum," Cathcart Works, G. & J. Weir, Ltd., 504*
Decks, Water-Tight. See *Water-Tight Subdivision*
Decontamination Equipment, A.R.P. (Transport Engineering, Ltd.), 643*
— Plant (Aveling-Barford, Ltd.), 582*
— Street, and Sewage Undertakings, 750
Decontaminator and Refuse Collector (Associated Equipment Co., Ltd.), 642*
Deep Navigation Colliery, Glamorgan, Electrical Accident at, 367
Deere & Co., Ltd., 84-h.p. Lightweight "John Deere" Agricultural Tractor, 681, 732*
Deichow Peak-Load Hydro-Electric Station, 36*
Delany, S., the Late, 506
Delray Power Station, Detroit, Blast-Furnace Gas-Fired Boilers, 207*
Delta Formation by River, 223
Demag, A.-G., Tower-Type Winding Plant, Fushun-Ryuho Colliery, 671*
Denver Sewage System, Colorado, Self-Supporting Horizontal Pipe-Line Span, 465*
Derby, Railway School of Transport, 126*
Derricks. See *Cranes*
Designs, Patents and Trade Marks (Review), 455
Destroyers. See *Warships*
Detergents for Bottle Washing, 721
Detroit Edison Company, Blast-Furnace Gas-Fired Boilers at Delray Power Station, 207*
Deutsche Lufthansa A.-G., Operating Experiences with Junkers Aeroplane Engines, 315*. See LETTER, 472
— Zeppelin Reederei, Airship "Graf Zeppelin," 751*
Dewatering and Drying of Coal, Report, 460
d'Harcourt, M., on Combined Operation of Steam and Hydraulic Stations for Paris Electricity Supply, 350*. See 431*
Diagrams, Metal-Price. See *Metal-Price Diagrams*
Dick, J., on Tensile Stresses in a Bearing Metal, 299*. See 235*, 295*, 611*
Die Blocks for Drop Forgings, Specification, 332
— Casting Equipment and Practice in the United States, 293*, 411*
— — Machines, American, 293*, 411*
Diesel Engines. See *Engines, Oil, Diesel; Marine Propulsion*
Digester, Steam-Jacketed, Explosion of, 147
Digging Machine. See *Excavator*
Dilatometer for Experiments on Freezing of Building Materials, 291
Dioptra, Description of, 541*
Direction Finding, Radiotelegraphic. See *Telegraphy, Wireless*
Directories. See LITERATURE INDEX
Disputes, Trades. See *Labour*
Dissipation and Frictional Fall in Rivers, 61
Distillation, Destructive, of Bituminous Coal, Investigations on, 485
Distributor, Fertiliser (Bamfords, Ltd.), 93*
District Heating by Steam, 279
Dock, Graving, Model Tests of Pump for, 245*
— Southampton, Handbook on, 103
Documentation, International Federation for, Oxford Conference, 50, 389, 707. See LETTER, 458
Domestic Fires, Atmospheric Pollution by, 280
— — Results attained with Coke and Coal, 717
— Heating, Advantages of Gas for, 750
— — Methods in Europe, 653*
— Stoves, German, Design of, 683*
— Use of Coal, Research on, 654
— Water, Methods of Charging for, 625
— — Supply, Prevention of Waste, 114
Donald, G. H., on Wood and Charcoal as Motor Fuels, 288
Donkin, S. B., on Developments in Electrical Engineering, 80. See 136
Doors, Water-Tight. See *Water-Tight Subdivision*
Dorey, Dr. S. F., on Acoustic and General Methods of Non-Destructive Testing, 652
Dorman, Long, & Co., Ltd., Hot-Metal Practice in Fixed Furnaces, 24
Draft Tube for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 610*
Drag-Head for Drag-Suction Dredger "Fu-Shing," 577*
Draw-Bench, Hydraulic Triple-Cylinder, (H. Berry & Co., Ltd.), 713
Dredged Cuts in Rivers, Stability of, 754
Dredger, Drag-Suction, "Fu-Shing" (F. Schichau G.m.b.H.), 495*, 577*, 638*
Drier, Grass, Rotary (Harvest Saver & Implement Co., Ltd.), 65*
Drifters, Model Experiments at National Physical Laboratory, 338
— Steam, Tank and Sea Tests, 599*, 662*
Drills and Drilling Machines. See *Machine Tools*
Drive, Belt, 1,000-b.h.p., for Air Compressor Tests (J. B. Lindley (1931), Ltd.), 140*. See *Addendum*, 191
— Friction, "P.K." Variable-Speed, 729*
Drop-Forgings, Die Blocks for, Specification, 332
— Stamping Plant for Sheet-Metal Aircraft Parts (De Havilland Aircraft Co., Ltd.), 52*
— Tests. See *Tests* (*Materials*)
Drum, Fusion-Welded, for La Mont Boiler, 414*
— Boiler, Solid-Forged with Riveted Ends, S.S. "Mauretania," 122
Drum Engineering Co., Ltd., Positive-Displacement Rotary Pump, 274*
— Welded, Schedule of Tests and Examination of, 256
Dry-Cleaning Process, Generation of Static Electric Charges during, 713
— Dock. See *Dock*
— Rot in Wood, Prevention of, 463
Drying Chamber for Coated Welding Rods (Spooner Dryer & Engineering Co., Ltd.), 613*
— and Dewatering of Coal, Report, 460
— Ice-Damaged Plant, Ontario Hydro-Electric Station, 203
— of Wood, Investigations on, 310
Drysdale, Dr. C. V., on Measurement of Mechanical Power, 69*
Drysdale & Sons, Ltd., High-Speed Centrifugal Pump, Suction Dredger "Fu-Shing," 579*
Dualock 'Bus-Bar-Zone Protective System, 329*
Ducts, Non-Metallic, for Electrical Services, Specification, 762
— Steel, for Electrical Services, Specification, 303
Dumfries County Council, Rural Electrification Schemes, 607
Dumping Valves, Lister, Dredger "Fu-Shing," 495*, 639*
Duncan, Prof. W. J., on Torsion of Built-up and Reinforced Tubes, 412*, 467*
Durain, Investigations on, 485
Duralumin, Corrosion Fatigue Tests of, 63*
Durasteel Roofs, Ltd., Fire-Protection Panelling, 529
"Durban Castle," M.S., Description of, 744
Durisol Special Plywood, 306
Dust, Coal, Explosions of. See *Coal Dust*
— — See also *Pulverised Coal*
Dykes, Flood, and River Control, 681*
Dynamics of Flying. See *Aeronautics*
Dynamometer. See *Torsion Meter*
Dynamos. See *Generators, Electric; Turbo-Generators*

E.

EADS, Captain J. B., and Training of Mississippi River, 651
Earl's Court Motor Exhibition, 481, 511, 599*
Earnock Colliery, Lanark, Accident from Electric Cable in, 367
Earth-Consolidating Machine, Vibratory (H. Frisch), 562*
— Embankments, Building Research Board's Investigations on, 105
— Magnetism. See *Magnetism*

East Medina Tide Mill, 446*
Eastwood, Dr. A. H., on A. T. Burner for Gas, 569
Eccles, G. O., on Moving-Coil Vibrometer, 263*. See 253
Economics, Industrial. See *Labour*
— National, and British Shipbuilding, 33
— Railway. See *Railway*
Economiser, Cast-Iron, Explosion of, 147
— for 1,000-lb. pressure La Mont Boiler, 414*
Edges, Steel, Gas-Cut, Investigations on Welding of, 521
Edgecombe, C. H., on Braking of Railway Trains, 282
Edinburgh Gas Department, Experiments on Production of Free-Burning Coke, 659
Edmonds, Major H., Airship "Graf Zeppelin," 751*

Education :

Army Vocational Training Centre, Aldershot, Souvenir, 686
Board of Education, Summer School for Engineering Teachers, 107
— of Trade Examinations for Engineers in Mercantile Marine, 42, 309, 425
Borough Polytechnic, London, 734
Bradford Technical College, Prospectus, 71
Brighton Technical College, Calendar, 312
British Foundry School, Birmingham, Courses at, 255
Cass Technical Institute, Courses at, 312
Chelsea School of Metallurgy, Prospectus, 312
Chemical Engineers, Institution of, Memorandum on Training of Chemical Engineers, 618
City and Guilds of London Institute, Annual Report, 364
— of London College, Lectures on Iron and Steel, 220
Education and Training of Engineers, 509, 520
Educational Institutions, Gifts to, 169
Engineering Public Relations Committee, Christmas Lectures for Young People, 760
Hokkaido Imperial University, Japan, Calendar, 256
Imperial College of Science and Technology, London, School of Highway Engineering, 276; Department of Aeronautics, Syllabus, 374
Iron and Steel Institute, Ablett Prize Paper, 255
King's College, London, Faculty of Engineering Syllabus, 190; Lectures on Steam Boiler Plant, 506
London School of Economics, Department of Business Management, Report, 189
— University B.Sc. (Eng.) Examinations, 137
Manchester Education Authority, Mechanical and Electrical Engineering Courses in Manchester, 275
— Municipal College of Technology Prospectus, 334
Marconi College, Chelmsford, Summer School at, 275
Marine Engineers, Institute of, Examination Data, 275
Mechanical Engineers, Institution of, Studentship and Associate-Membership Examinations, 57[illegible]
Melbourne University Engineering School, Rebuilding of, 223
Mercantile-Marine Engineers, Regulations for Examinations, 42, 309, 425
National "Safety First" Association, Travelling Scholarship Essay, 570
Naval Architects, Institution of, Martell Scholarships, 570; Award of Scholarships, 677
Northampton Polytechnic, London, Prospectuses, 275; Lectures on Electro-Deposition, 706
Queen Mary College, London, Guild of Friends of, 169
Regent Street Polytechnic, London, Prize Distribution, 586
Royal Sanitary Institute, Courses in Sanitary Science, 255; Certificate Courses at, 584
— Technical College, Glasgow, Calendar, 374
School for Aircraft Apprentices, Cosford, Staffordshire, 139
— of Railway Transport, Derby, 126*
Sheffield University, Sir Robert Hadfield Metallurgical Laboratories, 362*; Lectures on Electric Traction, 444
Sir John Cass Technical Institute, Courses at, 312
Society of British Aircraft Constructors, Particulars of Scholarships, 42
South Wales and Monmouthshire School of Mines Calendar, 374
Swansea University College, Prospectuses, 220
Technical Colleges of South Africa, Report, 248
— Education and Mechanics' Institutes, 98
Trade Schools and Training of Craftsmen, 98
Transport Correspondence Course, 570
University College, London, Faculty of Engineering Prospectus, 71; Lectures on Geology, 506; Calendar, 570
— Engineering Students, Curriculum for, 249, 251, 260. See LETTERS, 299, 530
— of London, B.Sc.(Eng.) Examinations, 137
West Hartlepool Institutes and Technical College, Prospectuses, 275
Westminster Techical Institute, Prospectus of Evening Classes, 255
See also PARAGRAPH INDEX

Edward, J., on Steam Drifters: Tank and Sea Tests, 599*, 662*
Eendenburg, D. C. F. van, the Late, 455
Efficiency of Boiler Plants. See *Boiler Plants*
— of Engines. See *Engines; Trials*
Effluents, Industrial, Application of Flocculation to, 687
Egan, A. L., on Vibration of Vertical Winding Ropes, 461*
Egerton, Prof. A. C. G., on Chemistry of Combustion, 566
Egypt, Hydro-Electric Developments in, 453
Egyptian Methods of Quarrying, 541
Elastic Properties of Materials for Vibration-Attenuating Supports, 124

Electric :

Accumulators, Train-Lighting, Specification, 491
Alternator. See *Generator; Turbo-Generator*
Arc Furnaces. See *Furnace, Electric*
— Welding. See *Welding*
Battery. See *Accumulator* (above)
British Electrical and Allied Manufacturers' Association, Annual Dinner, 680
Brushes, Carbon, for Electrical Machines, Specification, 436
'Bus-Bar-Zone Protective Systems (A. Reyrolle & Co., Ltd.), 329*
Cable Boxes, Bituminous Compounds for, Specification, 277
— In Mines, Accidents from, 367
— Sheathings, Specification, 284
Capacitance Measurements, National Physical Laboratory Investigations on, 711
Capacitor, Pilot-Motor, Single-Phase Three-Phase Conversion System (British Thomson-Houston Co., Ltd.), 531
Cathode Rays. See *Cathode*
Ceiling Roses, Two- and Three-Terminal, Specification, 647
Cell, Photo-Electric for Cultivator Control (A. Ferté), 26
Central Electricity Board, Report on Failure of Electricity Supply at Birmingham, 597
— Stations. See *Power Stations*
Coils and Reactors, Air-Cored (Review), 771
Dielectrics, National Physical Laboratory Investigations on, 712
Ducts, Non-Metallic, for Electrical Services, Specification, 762
— Steel, for Electrical Services, Specification, 303
Dynamo. See *Generator; Turbo-Generator*
Earth Pits, Corby Steel-Tube Plant, 469*
Earthing, Copper Electrodes for, Driving Tests of, 456
— Electrical Installations to Water Pipes, Report, 165
Electric Displays, Portable, Canadian Specification, 494
— Transmission Gear for Railcars, 622
Electrical Accidents and their Causes, 708
— Engineering Practice (Review), 770
— — Technical and Economic Developments in, 80, 136
— Instruments, Trend of Design in, 310, 317*
— Methods of Recording Vibrations, 288*
— — of Testing Materials, 652
— Plant, Fescol Works, Holloway, 531
Electricity Commissioners' Annual Report, 510
— Department, National Physical Laboratory, Work of, 711*, 725
— and Magnetism (Review), 455
— in Mines, Report for 1937, 367
Electrocardiograph, Portable, 319
Electrodes, Copper, for Earthing Purposes, Driving Tests of, 456
— for Shipbuilding, Specification, 17
— Welding, Shanks for, Specification, 393
Electroplating. See *Electro*
Electrotechnical Commission, International, International Electrotechnical Vocabulary, 684
Frequency Standard, National Physical Laboratory Investigations on, 711
— Standardisation, Birmingham Electricity Supply, 77
Furnaces. See *Furnaces*
Fuses, Cartridge, High-Rupturing Capacity (General Electric Co., Ltd.), 363
— Single-Phase Switch (Switchgear & Cowans, Ltd.), 402*
Galvanometer, Ballistic, for Iron Testing, 326, 350*
Generating Stations. See *Power Stations*
Generator. See *Generator; Turbo-Generator*
High-Voltage Research at National Physical Laboratory, 712
Hotplates, Electric, Control Switch for (Sunvic Controls, Ltd.), 571*
Hydro-Electric Power Plants. See *Power Plants*
Ignitron Loading Equipment for Traction Substations (British Thomson-Houston Co., Ltd.), 428*
Inductance Measurements, National Physical Laboratory Investigations on, 711
Induction Furnace. See *Furnace*
— Motors. See *Motors, Electric*
Insulating Materials, National Physical Laboratory Investigations on, 712
— — for Radio Work (United Insulator Co., Ltd.), 598
Lamp, Electric, Hand, with Gripping Tongs (British Central Electrical Co., Ltd.), 206*
— Hand, for Collieries, Experiments on, 718
— for Roads, Development in, 664
— for Road Lighting, 709
— Spot-Light for Welding Work (Philips Industrial (Philips Lamps, Ltd.)), 761
Lighting Equipment, Specifications, 219
Locomotives. See *Locomotives, Electric*
Machines. See *Generators; Motors; Turbo*
Mains. See *Cables* (above)
Mercury-Arc Rectifier Panels (British Thomson-Houston Co., Ltd.), 210*
Meter, Electric, Washing Machines for Parts of, 544*. See *Erratum*, 589
Motors. See *Motors, Electric*
Oil Switch. See *Switchgear*
Oscillator, Quartz-Ring, National Physical Laboratory, 712
Oscillographs, Electromagnetic and Cathode-Ray, Developments in, 317
Photo-Electric Apparatus, National Physical Laboratory Investigations on, 725

Electric—*continued.*

Photo-Electric Methods of Fineness Measurement of Powdered Materials, 494
Potentiometer, Alternating-Current, for Iron Testing, 326, 348*
— Measurements, Direct and Alternating Current (Review), 210
Power Stations. See *Power Stations*
— See *Power*
Pyrometer. See *Pyrometer*
— See also *Thermocouple* (below)
Railways. See *Railways*
Rays. See *Cathode; Gamma; Röntgen*
Regulator, Transformer-Voltage (Metropolitan-Vickers Electrical Co., Ltd.), 625
Relay Contactor, Inductive, Greenly, 459*
Röntgen Rays. See *Röntgen*
Rural Electrification in France, 202*
Signs, Incandescent Lamp, Canadian Specification, 494
Starters, Motor. See *Motors, Electric*
Static Electricity, National Physical Laboratory Investigations on, 712
Steel Manufacture. See *Furnace, Electric*
Storage Battery. See *Accumulator* (above)
Substation. See *Substation*
Switchgear. See *Switchgear; Motors, Electric*
Telegraphy. See *Telegraphy*
Telephony. See *Telephony*
Thermocouples for Gas-Temperature Measurement, 683
— Standard, National Physical Laboratory, 553
— See also *Pyrometer*
Traction. See *Locomotives, Electric; Trolley 'Bus; Railways*
Transformers. See *Transformers*
Turbo-Generators. See *Turbo-Generators*
Vacuum Tubes. See *Röntgen*
Vibrometer, Moving-Coil, 253, 263*
Voltage Standardisation in Electricity-Supply Industry, 621
— in Transformers, Investigations on, 251
Wattmeter, Reflecting, 318
Welding. See *Welding*
Winding Gear. See *Winding*
Wireless Telegraphy. See *Telegraphy*
— Telephony. See *Telephony*
X-Rays. See *Röntgen Rays*
See also PARAGRAPH INDEX
Electric-Arc Cutting and Welding Co., Preheated Electric Welds, 214

Electrical Engineers, Institution of :

Conversazione, 42
Summer Meeting, Birmingham, 48, 77
Discussion of Engineering Training in Relation to Present Conditions, 509
Electricity in Coal Mines, by R. Nelson, 730
Mersey and North Wales Centre :
Annual Dinner, 621
Electricians, Supervising, National Association of. See *Supervising Electrical Engineers, Association of*
Electricity Commissioners. See under *Electric*
Electro-Deposited Chromium, Structure of, 624
— Deposition, Lectures at Northampton Polytechnic, 706
— — Plant, Holloway Works, Fescol, Ltd., 530
Electrofeeder Boiler-Feed Pump, 154*
Electro-Horticulture Equipment Co., Ltd., Soil Steriliser, 95*; Liquid-Culture Tank, 96*
Electrolytic Corrosion. See *Corrosion*
Electron-Diffraction Patterns of Graphoid Layer on Bearing Surfaces, 91*
— Microscope (Siemens and Halske), 474*
Elevators for Grain, 572
Ellis, J., & Sons, Ltd., Hume Concussional-Spun Concrete Pipes, 557*
Elutriators for Fineness Measurement of Powdered Materials, 493*
Ely Paper Works, Cardiff, Failure of a Blank Flange, 147
Embankments, Earth, Building Research Board's Investigations on, 105
— River, near Bridges, 649
Emergency, National, and Engineers, 423, 479. See 250, 395. See LETTERS, 457, 530
"Emo," Italian Submarine, Launch of, 199
Empire Exhibition, Glasgow, 152*, 210*, 327*, 513*. See also vol. cxlv
Employees. See *Labour*
Employment. See *Labour*
Emulsion, Oil, for Cutting Tools, 546. See *Erratum*, 580
Endurance Tests. See *Alternating Stress* under *Tests* (*Materials*)
Energy Balance Sheet of Gas Engine, 137
Engines, Aero. See *Aeronautics*
— Diesel. See *Engines, Oil, Diesel; Marine Propulsion; Motorships*
— Fire. See *Fire Engines*
— Gas, Energy Balance Sheet of, 137
— — Use for Marine Propulsion, 537. See LETTER, 616
— — Work of Sir D. Clerk on, 730
— — See also *Producer;* and PARAGRAPH INDEX
— Indicators. See *Indicators*
— Internal-Combustion (Review), 356
— — Combustion, Vol. I (Review), 183
— — Combustion, Developments in, 80
— — Combustion, Investigation on Bearing Metals for, 235*, 295*. See LETTER, 299* See 611*.
— — Combustion, National Physical Laboratory Investigations on, 197
— Locomotive. See *Locomotives*
— Motor Car. See *Engines, Petrol*
— Oil, Diesel, 310-h.p. Eight-Cylinder, Ganz-Jendrassik, for Railcars, 703*
— — Diesel, 450-h.p. Eight-Cylinder, Harland-B. & W. for Locomotives, 48
— — Diesel, Four-Cylinder, for Air Compressor (Ingersoll-Rand Co., Ltd.), 732*
— — Diesel, Harland-B. & W., M.S. "Durban Castle," 744
— — Diesel, High-Speed Developments in, 80
— — Diesel, Marine, Buchi Superchargers for, 247
Engines, Oil, Diesel, Marine, 160-h.p. Four-Cylinder, Petter "Atomic," Royal Research Ship "Research," 226
— — Diesel, Marine, 140-b.h.p. Six-Cylinder (J. I. Thornycroft & Co. Ltd.), 141*
— — Diesel, Marine, 1,000-h.p. Sixteen-Cylinder (Davey, Paxman & Co. (Colchester), Ltd.), 111*
— — Diesel, Model Tests of Mountings for, 315
— — Diesel, for Railcar, Control of, 621, 630*
— — Diesel, 2,200-b.h.p. Twelve-Cylinder Double-Crankshaft (Sulzer Brothers, Ltd.), 100*
— — Diesel, 12,500-b.h.p. Twelve-Cylinder Sulzer, M.S. "Oranje," 418*
— — Diesel, Two-Stroke Superscavenge, 125-b.h.p. Two-Cylinder (Petters, Ltd.), 10*
— — Diesel, Two-Stroke Superscavenge, 250-b.h.p. Four-Cylinder (Petters, Ltd.), 10* See 597*
— — Diesel, Whirl of Crankshafts of, 6, 21*
— — Diesel. See also *Motorships; Marine Propulsion*
— — Junkers, Fuel Consumption and Weight of, 315. See LETTER, 472
— — Marine, Double-Acting, Two-Stroke, Harland-B. & W., M.S. "Carnarvon Castle," 89
— — Marine, Double-Acting Two-Stroke Harland-B. & W., M.S. "Warwick Castle," 428
— — Marine, 3,600-b.h.p. Nine-Cylinder Fiat, M.S. "Ramb I," 216*
— — Marine, 3,600-b.h.p. Seven-Cylinder Sulzer, M.S. "Ramb IV," 218*
— — Motor-'Bus, 90-h.p. Six-Cylinder Direct-Injection (Associated Equipment Co., Ltd.), 147*
— — Priestman, Model of First, at Hull Museum, 598*
— — 5½-b.h.p. Single-Cylinder (Ruston & Hornsby, Ltd.), 29*
— — 2-3 b.h.p. Single-Cylinder (S. Turner, Ltd.), 599*
— — 360-b.h.p. Six-Cylinder (Mirrless, Bickerton & Day, Ltd.), 515*
— — 20-h.p. Two-Cylinder (J. Fowler & Co. (Leeds), Ltd.), 96*
— — See also *Tractors* and PARAGRAPH INDEX
— Petrol, Aeroplane. See *Aeronautics*
— — 1 to 16 h.p. Air-Cooled (R. A. Lister & Co., Ltd.), 682
— — 30-h.p. Four-Cylinder for Minneapolis-Moline Tractor, 681
— — 10-20 h.p. Four-Cylinder, (Parsons Engineering Co., Ltd.), 129*
— — Marine 30-50 b.h.p. Four-Cylinder (Parsons Engineering Co., Ltd.), 341*
— — Motor Car, American, Progress in, 700
— — Motor-Car, Four-Cylinder, 2,000 c.c, Mercedes-Benz, 512
— — Motor Car, Institution of Automobile Engineers' Researches on, 107, 397
— — Motor-Car, Trend of Design in, 482
— — Motor-Car, 14-h.p. Vauxhall, Design of, 482
— — Motor Lorry, 70-h.p. Six-Cylinder (Reo Motors, Ltd.), 32
— — Paraffin, 14-3 b.h.p., Single-Cylinder (Petters, Ltd.), 30*
— — 5-b.h.p. Single-Cylinder (J. Fowler & Co. (Leeds), Ltd.), 96*
— — Six-Cylinder, for Oliver Rowcrop "70" Agricultural Tractor, 682
— — 84-h.p. Two-Cylinder, for Tractor (Deere & Co., Ltd.), 681, 732*
— — See also *Aeronautics; Motor Cars*
— Steam, Marine, 2,250-h.p. Triple-Expansion, Drag-Suction Dredger "Fu-Shing," 496*, 579*, 639*
— — Marine, Triple-Expansion, for Steam Drifters, Tests of 600*
— — Marine. See also *Marine Propulsion; Turbines*
— Winding. See *Winding*
— See also PARAGRAPH INDEX
Engineers and the Body Politic, 452
— Business Administration for (Review), 167
— and Civic Affairs, 17
— and the Community, 249, 251, 260. See LETTERS, 299, 530
— Contribution to Public Health Services, 602
— Education. See *Education*
— Institutions. See *Institutions*
— and International Crisis, 423, 479. See 250, 395. See LETTERS, 457, 530
— in Mercantile Marine, Board of Trade Examinations, 42, 309, 425
— and Modern Civilisation, 33
— in Modern World, Discussion on, 538
— and National Service, 250, 395, 423, 479. See LETTERS, 457, 530
— and Shipbuilders in Scotland, Institution of, Presidential Address by A. C. Gardner, 453; James Watt Dinner, 453; Industrial Planning, by H. Beaver, 566; Steam Drifters: Tank and Sea Tests, by J. Edward and Dr. F. H. Todd, 599*, 662*
— Society of, Engineering Aspects of Air-Raid Protection, by Dr. H. Chatley and H. Gutteridge, 594
— Status, Qualifications and Remuneration of, 616
Engineering Apprentices. See *Education*
— and Business, English in (Review), 640

Engineering Congress, International, Glasgow :

Inaugural Proceedings, 32
Reports of Proceedings, 32, 80, 109
Presidential Address, by Lord Weir, on Engineers and Modern Civilisation, 33
Building of Ships—a British Survey, by Sir J. Lithgow, 33
Coal Consumption in Great Britain: a Review and a Forecast, by Sir R. Redmayne, 33
Some Recent Developments in the Iron and Steel Industry in Britain, by Dr. A. McCance and T. W. Hand, 80
Technical and Economic Developments in Electrical Engineering, by S. B. Donkin, 80. See 136
Progress of the Internal-Combustion Engine during the last Twenty Years, by H. R. Ricardo, 80

Engineering Congress, International, Glasgow—*continued.*
Research on Materials and Modern Design, by Prof. A. Thum, 143*. See 80
International Air Transport, by Lord Sempill, 109
Municipal and Industrial Planning, by A. Lilienberg, 109
Electricity Generation and Distribution in France and other Countries, by E. Mercier, 201*. See 109, 135
Concerning Shipbuilding in Italy, by General G. Rota, 109
The River Clyde and the Harbour of Glasgow, by A. C. Gardner, 109
Recent Developments of the Gas Industry in Canada, by J. Keillor, 109
Central Station in One Man's Lifetime, by G. A. Orrok, 173*. See 110, 135, 452
Town and Country Planning in Relation to Industry, by G. L. Pepler, 110
Gas Industry, Past, Present and Future, by Sir D. Milne-Watson, 110
Engineering Contracts. See *Contracts*
— Department, National Physical Laboratory, Work of, 18, 62*, 107*, 151*, 196*
Engineering Designs, Ltd., Vonck High-Speed Writing Machine, 675
— Education. See *Education*
— Exhibition, Cardiff, 625
— General, Use of Scale Models in, 243*, 252, 313*. See *Erratum*, 284
— Industry, Need for Organisation of, 483
— Laboratories. See *Laboratories; National Physical*
— Law (Review), 183
— Public Relations Committee, Christmas Lectures for Young People, 760
— and Science in Ancient Times, 541*
— Science, Changing Outlook of, 249, 251, 260. See LETTERS, 299, 530
— Structures, Settlement Analysis of, 310, 403*
— Societies. See *Institutions*
— Standards. See *Standards Institution*
— Works. See *Works*
English in Business and Engineering (Review), 640
English Electric Co., Ltd., Exhibits at Glasgow Exhibition, 210*; 27½-h.p. Flame-Proof Motor, 210*; Air-Break Star-Delta Starter, 211*
English Steel Corporation, Ltd., Hollow-Forged Boiler Drums, S.S. "Mauretania," 122
Enthalpy of Water and Steam, Determination of, 1*, 34*
"Entre Rios," Argentine Destroyer, Completion of, 392, 455
Eppelsheimer, D., on Development of Continuous Strip Mills, 580
Eradicator, Bracken (W. Aitkenhead), 94*
Escalators, King's Cross Underground Station Reconstruction, 265*, 296*, 386*. See *Erratum*, 444
Esmond, W. G., on Safety Regulations for United States Ships, 116
Esthonian Oil-Shale Industry, 47
Estuaries, Tidal, Flow Problems in, 61, 165, 223
Etablissement Vermorel, Agricultural Powder Dusting Apparatus, 26*
Etzel Hydro-Electric Plant, Tailrace Model, 149*
Europe, Domestic Heating Methods in, 653*
European Steelworks, Electric Furnaces in, 539
Euston Station, Railway Centenary Exhibition, 368. See 594
Evans, E., the Late, 312
Evans, H., on Specific Heat-Temperature Curves of Iron and Steels, 580
Evaporation from Moist Surfaces, Investigations on, 596
— Tests, Coal-Slurry Filter Cake, 688
Evaporator, Marine, Explosion of, 321
Everdur-Alloy Hot-Water Storage Tank, 160
Excavations, Timbering of, and Construction of Main Sewers (Review), 108
Excavator, 5-cub. ft. Four-Purpose (Ransomes & Rapier, Ltd.), 442*
— ¼-cub. yd. Hydraulic Loading Shovel (Allis-Chalmers Manufacturing Co.), 403*
— 10-cub. ft. Multi-Purpose (T. Smith & Sons (Rodley), Ltd.), 628*
— Shovelling and Loading Machine for Underground Work (British Conway Shovels, Ltd.), 545*
— for Strip Mining of Bituminous Coal, 229*
Exchange, London Iron and Steel, Closing of, 758
Exhaust Gas. See *Gas*
— Steam Turbine. See *Turbine, Steam*
— Valves. See Valves.
Exhibition, Agricultural Machinery, Paris, 26*
— Brewers', Maltsters', Distillers' and Allied Traders', Engineering Exhibits, 572
— Building Trades, Olympia, 371*, 397*, 442*, 528*
— Empire, Glasgow, 152*, 210*, 327*, 513*. See also vol. cxiv
— Engineering, Cardiff, 625
— Eye-Protection, Royal Eye Hospital, 20
— Insulating Materials for Radio Work, 598
— Model Engineer, 374
— Motor, Earl's Court, 481, 511, 599*
— New York National Automobile, 700
— Professional Photographers' Association, 368
— Public Health, Royal Agricultural Hall, 581*, 641*
— Railway Centenary, Euston Station, 368. See 594
— Royal Agricultural Show, Cardiff, 29*, 65*, 93*
— Science in the Army, Science Museum, 621
— Scientific Apparatus, Royal Society Conversazione, 17
— Smithfield Club Show, Royal Agricultural Hall, 681, 732*
— See also PARAGRAPH INDEX
Experimental Tank. See *Tank, Ship Resistance*
Explosion, Boiler. See *Boiler Explosion*
— Colliery. See *Accidents* and *Colliery*
— Flames and Combustion of Gases (Review), 455
— Gaseous. See *Accidents* and *Colliery*
Export, Institute of, Inauguration of Birmingham Branch, 538
Export Trade. See *Trade;* and *Industries* in PARAGRAPH INDEX
Extensometer for Experiments on Freezing of Building Materials, 291
Extractor, Fume, for Welding Operations (Lincoln Electric Co., Ltd.), 159*
Eye, Human, Structure of, 221
— Injuries in Industry, Prevention of, 20

F.

FACING Machine. See *Machine Tools*
Factor of Safety for Vertical Winding Ropes, 461*
Factory Accidents. See *Accidents*
— Act, 1937 (Review), 254
— — 1937, Rest Periods during Working Hours, 9
— with Air-Raid Shelter, 572
— Heating by Steam from Central Station, 279
— Lighting in, Report, 650
— Management. See *Works Management*
— Opened, Closed or Extended, Report, 164
— and Towns, Garages in Relation to (Review), 168
— and Workshops, Home Office Inspector's Report, 193, 195
Fairey Aviation Co., Ltd., "Battle" Bombing Monoplane, 139*
Fairfield Shipbuilding Yard, 598
Fall, Frictional, and Dissipation, in Rivers, 61
Fan, Centrifugal, Forced-Draught, Model Tests of, 245*, 252
— Forced- and Induced-Draught, for La Mont Boiler, 416*
Faraday House Old Students' Association, Annual Dinner, 539
Farbenindustrie, I.G., Hydrogenation Process, 774
Farming. See *Agriculture; Tractors*
Farnsworth, W. M., on American Electric-Furnace Practice, 539
Fatigue, Industrial. See under *Labour*
— Investigations at National Physical Laboratory, 62
— Tests of Riveted Joints, 773
— — of Metals. See also *Alternating Stress* under *Tests (Materials)*
Federal Institute of Technology, Zürich, Hydraulic Laboratory, 3*, 149*
Feed Pumps. See *Pumps*
— Water System for La Mont Boiler, 504*
— — System, SS. "Queen Elizabeth," 383
Fellows, J. R., on Pressure Losses in Air Ducts, 302
Felt, Elastic Properties of, 125
Fence, Electrical, "Prime" (Harvest Saver & Implement Co., Ltd.), 66
Féraud, L., on Power Supply for Agriculture in France, 607
Ferodo and Cast Iron, Coefficients of Friction, 282
Ferrocarril Provincial, Buenos Aires, Service Results with 270-b.h.p. Diesel-Electric Railcars, 461
Ferro-Concrete Air-Raid Shelter ("Twisteel" Reinforcement, Ltd.), 529
— — Arch Bridge over River Thames, Waterloo, London, 587*
— — Bars and Wire for, Specification, 72
— — Bridge Design (Review), 697
— — Building Research Board's Investigations on, 106
— — Building, Sound Transmission in, Investigations on, 668
— — Construction, Apsley Railway Station, 402*
— — Foundation Raft for Four-Lift Gasholder, Sheffield, 323
— — Piles, Stresses in during Driving, Report, 87
— — Piling (Review), 455
— — Pipes, Hume Concussional-Spun (J. Ellis & Sons, Ltd.), 558*
— — in Sea Water, Deterioration of, 360
— — Structures for Storage of Liquids, Code for Design, 289
— — See also PARAGRAPH INDEX
Ferté, A., Cultivator with Photo-Electric Cell Control, 26
Fertiliser Distributor (Bamfords, Ltd.), 93*
Fescol, Ltd., Holloway Works, 530
File, Hand-Cut (J. Peace & Sons, Ltd.), 626
Films, Molecular, Production of, 710
Filters, Covered, Sewage Purification in, 692
— Gas, Contact Sulphuric-Acid Plant, 518*
— Paper, National Physical Laboratory Investigations on, 238
— Press, Hydraulic (S.H.Johnson & Co., Ltd.), 627*
— — Screw (S. Briggs & Co., Ltd.), 687*
Filtration, Modern Methods of, 627*, 687*
Finch, Prof. G. I., on Graphoid Layer on Bearing Surfaces, 91*
Findlay, W. D. K., on Dry Rot, 463
Fineness of Powdered Materials, Measurement of, 492*
Fire Brigade, London, 100-ft. Turntable Ladder, 23*
— Domestic, Results attained with Coke and Coal, 717
— Fighting Pump, Petrol-Driven, on Trailer (J. Beresford & Son, Ltd.), 528
— in Gas Mains, Method of Extinguishing, 718
— Hydrants, Provision and Maintenance of, 54
— at Kingston-on-Thames Power Station, 739
— Protection Panelling, Steel and Asbestos (Durasteel Roofs, Ltd.), 529
— — Regulations for United States Ships, 116
— Pumping Vehicle, Emergency (Ford Motor Co., Ltd.), 641*
— Service, London Auxiliary, Formation of, 17, 535
— in Spoil Banks, Investigation on, 138
Firebricks, Institution of Gas Engineers' Investigations on, 658
— See also *Refractory Materials*
Firedamp Explosions. See *Accidents* and *Colliery*
Fireproofing of Wood, Experiments on, 311
Fischer-Tropsch Hydrogenation Process, 517
Fish, Preservation of, Investigations on, 308
Fishenden, Dr. M., on Errors in Gas-Temperature Measurement, 683
Fishleigh Rotary Cultivator Co., Ltd., Portable Winch for Use with Tractor, 94*
Fitting of Shafts in Holes. See *Gauges*
Fitzgerald, D. F. C., King's Cross Underground Station, Reconstruction, 265*, 296*, 386*. See *Erratum*, 444
Flames, Combustion, and Explosion of Gases (Review), 455
— Spectra, National Physical Laboratory Investigations on, 238
— Temperature, Measurement of, 683
Flange, Blank, Failure of, 147
— Pipe, for High-Pressure and Temperature, National Physical Investigations on, 64
Fleet. See *Warships*
Fleming, Dr. A. P. M., on Engineering Training and Education, 509; on Magnetic and Electrical Methods of Testing Materials, 652
Fleming, R., on Uniform Building Code, 385. See *Addendum*, 503
Flight. See *Aeronautics*
Flip in Rifle Barrels, Experiments on, 45
Floating Crane. See *Crane*
Flocculation of Industrial Effluents, Cost of, 687
— Plant (Unifloc Reagents, Ltd.), 687*
Flood Dykes and River Control, 681*
— in North India, 425
Floor, Heat Leakage through, National Physical Laboratory Investigations on, 596
— Sound-Proof, Investigations on, 668
Flooring, Teak, Effect of Kiln-Seasoning Treatments on Wearing Qualities, 52
Flow of Compressible Fluid, Relaxation Applied to, 251
— Fluid, Passages, Scale-Model Experiments on, 313*
— through Nests of Tubes, Experiments on, 605*, 665*, 723*
— Problems of Rivers Whangpoo and Yangtse, 61, 165, 223, 241
— of Sand-Water Mixtures in Pipe Lines, Investigations on, 158
Flowmeter, Pipe, Flow past Plug in, 596
Flue Gases, Elimination of Sulphur from, 499
Fluid, Compressible, Flow of, Relaxation Applied to, 251
— Cutting, Functions of, 659*
— — for Machine Tools, Investigations on, 546. See *Erratum*, 580
— Flow Passages, Scale-Model Experiments on, 313*
— Friction. See *Friction; Ship Resistance*
— Motion Investigations at National Physical Laboratory, 196, 550
— — among Nests of Tubes, Experiments on, 605*, 665*, 723*
Fluidity of Alloy Steel, Investigations on, 548, 581
Flying Boats. See *Aeronautics*
— Scotsman Trains, London & North Eastern Railway, 41*
Foil, Aluminium, for Insulating Purposes, Investigations on, 596
Fogg, A., on Friction of Oscillating Bearing, 170
Foley, Sir J., on the State and Marine Engineers, 425
Folsom, R. G., on Transportation of Sand in Pipe Lines, 158
Food Investigation Board, Annual Report, 308
— Preservation, Progress in, 308
Footbridge, Callender-Hamilton Unit-Construction, Western Avenue, Greenford, 342*
Ford Motor Co., Ltd., Welded Waterless-Type Klonne Gasholder, 129*; Multi-Purpose Municipal Vehicle, 641*; Emergency Fire-Pumping Vehicle, 641*
Forest Products Research Board, Report on Kiln-Seasoning Treatments of Teak, 52; Report on African Pencil Cedar, 292; Annual Report, 310; Report on Machinery and Equipment for Bending Wood, 389; Report on Dry Rot in Wood, 463
— Rainfall and Soil Erosion, 579, 638
Forestry Tractors, 66*
Forging, Drop. See *Drop Forging*
— Press. See *Press* under *Machine Tools*
Förster, Dr. F., on Acoustic and General Methods of Non-Destructive Testing, 652
Foster Instrument Co., Recording Pyrometer for 40-ton Annealing Furnace, 434
Foundation Company of Canada, Montreal Harbour Developments, 69*
— Raft, Ferro-Concrete, for Four-Lift Gasholder, Sheffield, 323
— of Structures, Settlement Analysis, 310, 403*
Foundries, Brass and Iron, Glenfield & Kennedy, Ltd., 9
— Cement-Sand Preparation Plant for (August's, Ltd.), 430*
— Hadfield Metallurgical Laboratories, Sheffield University, 363*
— Ironfounding in England, 1490-1890, 632
— Work. See also *Die Casting*
— See also *Castings; Moulding*
Fowler, Sir H., the Late, 484*
Fowler, J., & Co. (Leeds), Ltd., Shallow-Well Pumping Unit, 96*; 5-b.h.p. Single-Cylinder Petrol Engine, 96*; 20-h.p. Two-Cylinder Oil Engine, 96*
Fox, M. L., on Speed and Curvature on Roads, 664
Foxwell, Dr. G. E., on Solid Fuel for Motor Transport, 299
Fracture of Metals, National Physical Laboratory, Investigations on, 62
Framework, Steel, Callender-Hamilton Unit-Construction Aeroplane Shed, 727*
France, Electrical Generation and Distribution in, 109, 136, 201*
— England Ultra-Short Wave Radio-Telephone Link, 761
— Producer-Gas Lorries in, 654, 737
— Use of Wood and Charcoal as Motor Fuels in, 288
— See also *French*
Frank, T. P., Waterloo Bridge Reconstruction, 587*
Freeboard, Ocean Waves, and Strength of Ships, 6
Freeborn Automatic Transmission System for Railcar, 622
French Agriculture, Power Supply for, 499, 607
French Railways, Electrification of, 755
— — Multiple-Unit Trains on, 756
— See also *France*
Freon, National Physical Laboratory Investigations on, 596
Frettage of Metals, National Physical Laboratory Investigations on, 63
Fretz-Moon Steel-Tube Plant, Corby, Electrical Equipment for, 469*
Frichs Control System for Diesel Railcars, 630*
Friction Clutch. See *Clutch*
— of Oscillating Bearing, Report, 170
— of Railway Brake Blocks, Experiments on, 719
Frictional Coefficient, Leather on Cast Iron, 108*
— Fall and Dissipation in Rivers, 61
— Resistance of Ships. See *Ship Resistance*
Frisch, H., Vibratory Earth-Consolidating Machine, 562*
Frontinus on Roman Aqueducts, 542
Frost, Bursting of Water Pipes by, 625
— Resisting Properties of Building Materials, Investigations on, 291
Froude Laboratory, National Physical Laboratory, Work of, 338*, 370
Fruit Storage in Gas, Investigations on, 308
"Fucilière," Italian Destroyer, Launch of, 478
Fuel Consumption, Junkers Heavy-oil Engines, 315. See LETTER, 472
— Institute of, Presidential Address, by Lieut.-Col. J. H. M. Greenly, on Fuel Problems, 482; Melchett Lecture on Destructive Distillation of Coal, by Prof. R. V. Wheeler, 485. See 482; Annual Dinner, 482; *Symposium on Gas-Temperature Measurement*: Programme, 612; The Temperature of Gas: Its Meaning and Measurement, by Captain J. G. Bennett and M. Pirani, 683; Errors in Gas-Temperature Measurement and their Calculation, by Dr. M. Fishenden and O. A. Saunders, 683; Wall Effect in Gas-Temperature Measurement, by C. H. Bosanquet, 683; Measurement of Flame Temperatures, by G. Ribaud, Y. Laure and H. Gaudry, 683; Theory and Application of the Suction Pyrometer, by A. Shack, 683; Optical Temperature Measurement of Luminous Hydrocarbon Flames, by G. Naeser, 683; Metallic Materials for Thermocouples, by A. Schultz, 683; Measurement of Temperature in High-Pressure Containers, by A. Michels and B. Blaisse, 683; Modified Aspirating Thermocouples for Gas Temperatures, by B. M. Larsen, G. Siddall and K. Heindlhofer, 684; Errors in Gas-Temperature Measurement, by A. F. Webber, 684; Measurement of Gas Temperature in Glass Furnaces, by M. Parkin, 684; Gas-Temperature Measurement in Boilers, by W. R. Hawthorne, 684; Measurement of Gas Temperatures in the Chemical Industry, by J. C. Swallow, 684; Application of Temperature-Measuring Equipment to the Measurement of Gas Temperatures, by S. Matthews, 684; Temperature-Measuring Instruments, by W. Bowen, 684; Measurement of Temperature of Producer Gas, by M. W. Thring, 684; Modern Portable Gas Producer, by B. Goldman and N. Clarke-Jones, 738
— Liquid. See also *Oil Fuel*
— Low Temperature Carbonisation of Coal. See *Coal, Low-Temperature Carbonisation*
— Motor, Positive-Displacement Meter for (Tecalemit, Ltd.), 501*
— — Production by Fischer-Tropsch Hydrogenation Process, 517
— — Production by I. G. Farbenindustrie Hydrogenation Process, 774
— — Wood and Charcoal as, 288
— — See also *Gas; Motor; Petrol; Producer*
— Oil. See *Oil Fuel*
— Petroleum, Use in British Agriculture, 608
— Production and Utilisation, 482
— Pump. See *Pump*
— Research Board, Test of Morgan Rotary-Retort Low-Temperature Carbonisation Plant, 113*; Report on Production of Active Carbon from Bituminous Coal, 408; Report on Production of Aromatic Hydrocarbons from Phenols at Atmospheric Pressure, 464; Annual Report, 765
— — Station, Gas Investigations at, 603
— Smokeless. See *Coal, Low-Temperature Carbonisation*
— Solid, for Motor Transport, Advantages, 299
— — Smoke Abatement with, 654
— See also *Coal; Oil; Gas; Pulverised Coal*
Fulham Power Station, Flue-Gas Washing at, 499
Fume Emission, Report on Alkali Works, 138
— Extractor for Welding Operations (Lincoln Electric Co., Ltd.), 159*
— Sulphur, Atmospheric Pollution by, 280
Furnace, Annealing, 40-ton, Coal-Fired, for Steel Castings (Stein & Atkinson, Ltd.), 434*
— Blast, Development of, 519. See 509
— — Gas, Use in Boilers, Delray Power Station, 207*
— Boiler. See *Stoker*
— Electric, in American Steelworks, Practice with, 539
— — in European Steelworks, 539
— — Hood-Type, for Bright Annealing (General Electric Co., Ltd.), 576*
— — for Vacuum-Fusion Determination of Oxygen in Steel, 238*
— — Wire-Wound Resistance, Control of Temperature in, 553
— Gas-Fired, Cassel Salt-Bath (Imperial Chemical Industries, Ltd.), 152*
— — Fired Combustion Type (Selas Gas & Engineering Co., Ltd.), 214*
— — Fired, Heat Treatment (Lucas Furnaces, Ltd.), 156*
— — Fired, Muffle (Selas Gas & Engineering Co., Ltd.), 213*
— Glass, Measurement of Temperature in, 684
— for Heavy Weldless-Steel Tube Plant (Priest Furnaces, Ltd.), 713
— for Hot-Air Heating Systems, 682
— Lead-Melting, Portable (M. Sievert), 284

Furnace, Oil-Fired 5-ton Rotary (Glenfield & Kennedy, Ltd.) 10*
— — Fired, Tilting, with Preheated Air (Monometer Manufacturing Co., Ltd.), 262*
— Open-Hearth, Acid, Steel-Melting Practice in, 148
— — Hearth, Basic, Fixed, Cold-Metal Practice in, 119
— — Hearth, Design and Control, 176
— — Hearth, Determination of Temperature of Steel in, 553
— — Hearth, Fixed, Hot-Metal Practice in, 24
— Technology, Modern (Review), 697
Fuses, Cartridge, High-Rupturing Capacity (General Electric Co., Ltd.), 363
— Single-Phase Switch (Switchgear & Cowans, Ltd.), 402*
"Fu-Shing," Drag-Suction Dredger (F. Schichau G.m.b.H.), 495*, 577*, 638*
Fushun-Ryuho Colliery, Mukden, Tower-Type Winding Plant, 671*

G.

GALES, Sir R. R., on River Training in Connection with Bridges, 649
Gall, D. C., on Instruments for Measurement of Incremental Permeability, 348*. See 326
Galvanised Corrugated Sheets, Specification, 320
— Iron Wire, Investigations on Corrosion of, 27, 54*
Galvanising and Metallised Zinc Coatings, 657
— Plant, Corby Steel-Tube Plant, 471*
Galvanometers. See *Electric*
Gamma-Ray Methods of Testing Materials, 652
Ganges, River, Hardinge Bridge over, 650
Gantry for Reconstruction of Waterloo Bridge, 587*
— See also *Cranes*
Ganz & Co., Ltd., Transmission Gear for Diesel Railcar, 622, 632; Articulated Railcars for Argentine State Railways, 702*, 756*
Gapper, Root-Crop (E. H. Bentall & Co., Ltd.), 31*
Garages for Cleansing and Transport Undertakings, 750
— in Relation to Factories and Towns (Review), 168
Gardner, A. C., on River Clyde and Glasgow Harbour, 109; on International Engineering Congress, 453
Garner, J. H., on Sewage Disposal and River Pollution, 749
Garreau, M., on Multiple-Unit Trains in France, 756
Garwood, Dr. F., on Automatic Traffic Counter, 613*
Gas, Blast-Furnace, Use in Boilers, Delray Power Station, 207*
— — Furnace, Utilisation of, 520
— Calorimeter, "Thermeter" Recording (Cutler-Hammer, Inc.), 345*
— Charcoal, for Motor Vehicles, 288
— Combustion, Flames and Explosion of (Review), 455
— Cylinders, National Physical Laboratory Investigations on, 64, 238
— — Steel, Effect of Gases on, 396
— Department, Edinburgh, Experiments on Production of Free-Burning Coke, 659
— Engine. See *Engine, Gas*
— Engineers, Institution of, Papers on Gas-Manufacturing Methods, 75; Autumn Research Meeting: Report of Research Executive Committee, 569; Report of Joint Research Committee, Part III. Properties and Method of Use of Aeration Test Burner, 569; Report of Gas Works Safety Rules Committee, 569; Institution Gas Fellowship Report on Influence of Furnace Atmospheres on Scaling of Mild Steel at Temperatures from 1,200 deg. C. to 1,400 deg. C., 570; Report of Joint Research Committee on Investigation of Use of Oxygen and High Pressure in Gasification, Part III. Synthesis of Gaseous Hydrocarbons at High Pressures, 602; Report of Joint Research Committee on Complete Gasification of Coal and Methane Synthesis, 603; Report of Refractory Materials Joint Committee, 658; Hot Patching of Retorts by Blowpipe Spray Welding, by T. F. E. Rhead, S. K. Hawthorne and V. H. Deacon, 658; Production of Free-burning Coke in Continuous Gas Retorts, by J. Jamieson and Dr. J. G. King, 659; Some Results attained with Solid Fuels used in Open Grates for Heating Living Rooms, by Dr. W. Davidson and Dr. H. Hartley, 717; Second Report of the Pipes Committee, 718; Report on Unaccounted-for Gas, 718
— Exhaust from Motor Vehicles, 300
— Fired Furnaces. See *Furnaces*
— Flue, Elimination of Sulphur from, 490
— — See also *Fume*
— and Gas Works. See also PARAGRAPH INDEX
— Industry in Canada, Developments in, 109
— — Past, Present and Future, 110
— Ionisation of. See *Ionisation*
— Liquefied, National Physical Laboratory Investigations on, 64
— Manufacturing Methods, Future Developments, 75
— — Use of Cannel Coal in, 106
— Producer. See *Producer*
— Pipe, Wrought Iron, Specification for, 718
— under Pressure, Effect on Steel, 396
— Retorts, Hot-Patching by Blow-Pipe Cement-Spray Welding, 658
— in Service of Public Health, 750
— Specific Heats of, National Physical Laboratory Investigations on, 197
— Temperature Measurement, Symposium on, 683
— Town, Aeration Test Burner for, 569
— Unaccounted-for, Method of Calculation, 718
— Welding. See *Welding*
— Wood, for Motor Vehicles, 288
— Works, Birmingham, Hot-Patching of Retorts by Blow-Pipe Spray Welding, 658
— — Safety Rules, Institution of Gas Engineers' Report on, 569
Gas. See also *Carbon Monoxide; Hydrogen; Nitrogen; Oxygen, &c.*
Gaseous Explosions. See *Accidents* and *Colliery*
— Hydrocarbons, Synthesis at High Pressure, 602
Gasholder, Four-Lift, Spiral-Guided, Sheffield Gas Company, 323*, 357*
— Klonne, Welded Waterless-Type (Horseley Bridge & T. Piggott, Ltd.), 129*
— Sprayed-Zinc Coating of, 657*
Gasification of Bituminous Coal in Water-Gas Generator, Experiments on, 603
— of Pulverised Coal with Oxygen under Pressure, 603
Gaskill, J., on Electricity Supply in Small Commercial Market, 653
Gasoline. See *Petrol; Engine, Petrol; Aeronautics*
Gates, Wicket, for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 608*
Gaudry, H., on Measurement of Flame Temperature, 683
Gauge, Calliper, Continuous, Oemichen Automatic, 115*
— End, High-Sensitivity, Comparator for, 183*
— Fits and Limits for Cylindrical Work, Questionnaire on, 137
— National Physical Laboratory, Tests of, 266*
Ganging of Lathe Leadscrews, 632*
— Outfits for Strip Mills (Cambridge Instrument Co., Ltd.), 320*
Gayler, Dr. M. L. V., on Constitution of Aluminium-Zinc Alloys, 567; on Characteristics of Copper-Aluminium Alloys, 568
Gear, Steering. See *Steering* and *Motor-Car Details*
— Transmission, Diesel-Engined Railcars, Argentine State Railways, 703*
— — for Diesel Railcars, 621, 630*
— — Friction, "P.K." Variable-Speed (W. Prym), 729*
— — for 8½-h.p. Lightweight Agricultural Tractor, 681, 732*
— — for 78-b.h.p. Oil-Engined Shunting Locomotive, 772*
— — Salerni Hydro-Kinetic, 268*, 482
— Unit for Two-High Hot-Rolling Mill, 19*
— Worm-Reducing, 100-h.p. Radicon (D. Brown & Sons (Hudd), Ltd.), 655*
Geared Turbines, Marine. See *Marine Propulsion*
Gearing, Reduction, S.S. "Queen Elizabeth," Castings for, 383*
— Wooden-Toothed, in Tide Mills, 445*
Geary, W., on Hot-Metal Practice in Fixed Furnaces, 24
Gebus Transmission System for Railcars, 622
General Electric Co., Ltd., Witton Works, 48, 78; 168-h.p. Electric Motors, 51; Exhibits at Glasgow Exhibition, 211*; 5-h.p. 230-Volt Steelworks Motor, 212*; 170-h.p. Traction Motor, 212*; Shutter-Pattern Switch Sockets, 277; High-Rupturing Capacity Cartridge Fuses, 363; Spring-Closing Oil Circuit-Breakers, 406*; Hood-Type Electric Furnace for Bright Annealing, 576*; Refrigerator for Optical Works, 655
General Motors Corporation, Die-Casting Machines, 295*
Generating Set, 10-20-h.p. Petrol-Driven, with Stand-by Engine (Parsons Engineering Co., Ltd.), 129*
— Station. See *Power Station*
Generator, Electric, 82,500-kVA, Boulder Dam Power House, 59*, 179*
— — 50,000-kW, Clarence Dock Power Station, 483
— — 24,000-kW, Deichow Hydro-Electric Plant, 36*
— — 300 kW for Diesel-Electric Locomotives (Brown, Boveri & Co., Ltd.), 48
— — 1,250-kW for 4,400-b.h.p. Diesel-Electric Locomotive, 100*
— — 1½-kW Oil-Driven, for Lifeboats, 599*
— — Ontario Hydro-Electric Plant, Rehabilitation after Damage by Ice, 203
— — 800-kW, S.S. "Mauretania," 123
— — for Power Stations, Developments of, 173
— — 2,200-kW, S.S. "Queen Elizabeth," 384
— — 140-h.p. Steam-Driven, Anti-Vibration Mounting for, 185
— — See also *Turbo-Generators*
— Steam (Review), 697
— Water-Gas, Gasification of Bituminous Coal in, Experiments on, 603
Genève, Prof. L. F. C. A., on Long-Distance Transmission of Steam, 279
Gent & Co., Ltd., Automatic Water-Level Indicator, 626
German Domestic Stoves, Design of, 683*
— Railways, Electric Power Supply for, 755
Germany, Deichow Peak-Load Hydro-Electric Station, 36*
— Electric Power Supply in, 653
— Producer-Gas Lorries in, 654, 737
Gestra Steam Trap, Vaposcope Indicator for, 601*
Gibb, Sir A., and Partners, Steam and Water Supply, Treforest Trading Estate, 97
Gibbons, J. F., on Gas Engines for Small Craft, 537. See LETTER, 616
Gibson, J., on Cold-Metal Practice in Fixed Basic Open-Hearth Furnaces, 119
Gilbert, C. L., on Petroleum Fuels for Agriculture in Great Britain, 608
Gilman, F. (B.S.T.), Ltd., Manufacture of Small Milling Cutters, 491*
Gilmour, H., on Production of Active Carbon from Bituminous Coal, 408
Gilsons, Messrs., Quarry Plant at St. Austell, 506*
"Giraffe" Crane, 444
Girders, Approach Spans, Balanced-Cantilever Bridge over Connecticut River, 553*, 676
— See also *Bridges*
Gjers, Mills & Co., Ltd., Middlesbrough, Failure of Blow-Down Pipe, 148
Glamorgan, Deep Navigation Colliery, Electrical Accident at, 367
Glasgow Empire Exhibition, 152*, 210*, 327*, 513*. See also Vol. cxiv
— Harbour and River Clyde, 109
— International Engineering Congress. See *Engineering Congress, International, Glasgow*
Glasgow Royal Technical College Calendar, 374
Glass Containers, Detergents for Washing, 721
— Furnaces, Measurement of Temperature in, 684
— Homogeneity of, 721
— Materials, Exhibits at Building Trades Exhibition, 530
— Technology, Society of, Homogeneity of Glass, by F. J. Hurlbut, 721; Detergency and the Glass Container, by E. O. Rounsefell, 721
Glassware, Volumetric, National Physical Laboratory Investigations on, 299
Glazier, E. V. D., on Magnetic Testing of Rings and Small Transformer Cores, 573*
Glenfield & Kennedy, Ltd., Kilmarnock Works Extensions, 9*
Gogra, River, India, Irrigation-Pumping Plant, 768*
Gohin-Poulenc Producer-Gas Plant for Lorries, 654
Göhring, Dr. O., on Hot-Air Heating, 682
Gold Production in Canada, 1937, 373
Goldman, B., on Modern Portable Gas Producer, 738
Goodacre, E. J., on Air-Raid Shelters, 692
Goodwin, Barsby & Co., Ltd., Stone-Crushing and Screening Plant, 597*
Gordon, Lieut.-Col. Lord Dudley, on Engineering Industrial Organisation, 483
"Gothic Star," S.S., Explosion of Evaporator, 321
Götz, Gebr., Double-Crank Plastic Moulding Press, 274*
Government Railways. See *Railways*
Governor Control System, 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 603*
Graaf, J. E. de, on X-Ray and Gamma-Ray Methods of Testing Materials, 652
"Graf Zeppelin," German Airship, Description of, 751*
Grain Harvests of World, Transportation of, 571
— Law Vertical Hammer Mill for, 26
Grand Union Canal Co., Transport Service to America, 539
Graphoid Layer on Bearing Surfaces, 91*
Grass Comb (R. A. Lister & Co., Ltd.), 67*
— Cutter Collector, Shanks' (Harvest Saver & Implement Co., Ltd.), 65*
— Drier, Rotary (Harvest Saver and Implement Co., Ltd.), 65*
Grates, Open, Results with Solid Fuels in, 717
— See also *Stoker*
Gravesend Sewage Works, Experiments on Activated-Sludge Process, 692
Graving Dock. See *Dock*
Gravity Conveyors. See *Conveyors*
— Determinations, National Physical Laboratory Investigations on, 267
Greases, Lubricating: Their Manufacture and Use (Review), 610
— Multipoint Lubrication Battery for (Tecalemit, Ltd.), 227*. See *Addendum*, 272
Great Britain, Coal Consumption in, 33
— — Iron and Steel Industry of, Developments in, 80
— — Motor Industry of, 1938, Report, 337
— — Road Development in, 281, 378, 435*
— — Search for Oil in, 593
— — Tide Mills in, 445*
Greatrex, F. B., on Transients in Transformers, 251
Greece and Rome, Science and Engineering in, 541
Green, E., & Son, Ltd., Economiser for La Mont Boiler, 414*
Green, J. R., on Relaxation Applied to Flow of Compressible Fluid, 251
Greenford, Western Avenue, Callender-Hamilton Unit-Construction Footbridge, 342*
Greenly, H., Inductive Relay Contactor, 459*
Greenly, Lieut.-Col. J. H. M., on Fuel Problems, 482
Greig, J., on Harmonic Power in Iron Testing, 431*. See 326
Gresley, Sir H. N., "Flying Scotsman" Trains, 41*; Train for London-Harwich Service, 456*
Griffith, Sir J. P., the Late, 512*
Grinding Machines. See *Machine Tools*
Grit Emission, Report on Alkali Works, &c., 138
Grove, W. G., Balanced-Cantilever Bridge over Connecticut River, 553*, 676
Guide-Bunds for Rivers near Bridges, 649
— Spiral, and Carriages, for Gasholder, Sheffield, 357*
Gully Emptier with Monitor (Scammell Lorries, Ltd.), 582*
Gunmetal Castings, Relief of Internal Stress in, 230*
Gunn, Dr. R., on Essential Elements in Naval Research, 141
Gunnery Instruction for Mercantile Marine Officers, 47
Gutteridge, H., on Engineering Aspects of Air-Raid Protection, 594
Guy Motors, Ltd., Motor Lorry with Air-Compressing Plant, 583*

H.

H.M.SS. See under *Warships*
Hack-Sawing Machine. See *Machine Tools*
Hadfield, Sir Robert, Metallurgical Laboratories, Sheffield University, 362*
Hadfields, Ltd., Manganese-Steel Rails for Newcastle-upon-Tyne Railway Junction, 584*
Halcrow, W. T., Reconstruction of King's Cross Underground Station, 265*, 296*, 386*. See *Erratum*, 444
Hall, S., Easton and Robertson, Metropolitan Water Board's Laboratories, 502*
Hamburg-America M.S. "San Francisco," Wave Measurement Aboard, 6
— Heat Distribution Plant in, 279
Hamburger Flugzeugbau G.m.b.H., Long-Distance Seaplane "Hamburg HA 139," 720*
Hamilton and Sarnia Bridge Companies, Blue Water International Bridge, 377*
Hamlyn, W. H., Railway School of Transport, Derby, 126*; Apsley Railway Station, 403*
Hammers. See *Machine Tools*
"Hampden," Bombing Aeroplane (Handley Page, Ltd.), 7*
Hams Hall Power Station, Birmingham, Visit to 48, 77; Failure of Transformer at, 597
Hancock & Co. (Engineers), Ltd., "Pullomax" Shearing Machine for Sheet Metal, 625
Hand, T. W., on Developments in Iron and Steel Industry, 80
Handley Page, Ltd., "Hampden" Bombing Aeroplane, 7*
Handling Methods for Grain, 571
Hanson, Prof. D., on Tin-Rich Antimony-Tin Alloys, 568
Harbour, Glasgow, and River Clyde, 109
— Montreal, Developments, 69*
— See also PARAGRAPH INDEX
Harcourt, M. d', on Combined Operation of Steam and Hydraulic Stations for Paris Electricity Supply, 350*. See 431*
Hardening Metals. See *Heat Treatment* under *Metallurgy*
Hardie-Tynes Manufacturing Co., 14-ft. Butterfly Valves, Boulder Dam Power House, 59*, 179*, 239*
Hardinge Bridge over River Ganges, 650
Hardness Tests. See *Tests (Materials)*
Hardy, A. C., on Cross-Channel Services, 598
Harland & Wolff, Ltd., 900-h.p. Diesel-Electric Locomotives, 48; Reconditioning of M.S. "Carnarvon Castle," 88*; Gear-Wheel Centres, S.S. "Mauretania," 121*, 169; Re-engining of M.S. "Warwick Castle," 428; M.S. "Durban Castle," 744
Harmonic Power in Iron Testing, 326, 431*
"Harpen I," Motor Tug, Gas Engine of, 537
Harrison, McGregor & Co., Ltd., Double-Bar Bracken Breaker, 30*; Tractor Expanding Rake, 30*
Harrow, Grassland (Bamfords, Ltd.), 93*
Hartford Electric Light Co., Mercury-Vapour Plant, 175
Hartley, Sir C. A., and Training of Mississippi River, 651
Hartley, Dr. H., on Results with Solid Fuels in Open Grates, 717
Harvest Saver and Implement Co., Ltd., Rotary Grass Dryer, 65*; Shanks' Grass Cutter Collector, 65*; Prime Electrical Fence, 66
Haseldine, J. F., on Public Water-Supply Problems, 53; on Water Charges, 625
Hasselt, Belgium, Collapse of All-Welded Bridge, 137. See LETTERS, 187, 360
Hatfield, Perrin & Partners, Investigation on Stresses in Welded Pipes, 280*
Haulage Investigations by Safety in Mines Research Board, 719
Hawksley Lecture on Development of Television, 565
Hawtayne, F. W. S., on Collapse of All-Welded Bridge, 137. See LETTERS, 187, 360
Hawthorn, R. & W., Leslie & Co., Ltd., Trials of H.M. Cruiser "Manchester," 191; Launch of H.M. Flotilla Leader "Jervis," 335; Launch of H.M. Flotilla Leader "Kelly," 590
Hawthorne, S. K., on Hot-Patching of Gas Retorts, 658
Hawthorne, W. R., on Gas-Temperature Measurement in Boilers, 684
Hay, D., the Late, 568
Health Conditions in Tropics, Work on, 132
— Ministry of, Annual Report, 222; Report on Preservation of Countryside, 396; Report on Refuse Collection and Street Cleansing, 483
— Research Board, Industrial, Annual Report, 655
— Services Congress, Public. See *Public Health Services Congress*
Heat Distribution by Steam from Central Station, 279
— Driers for Coal, 460
— Engines. See *Engines; Turbines; Aeronautics*
— Insulating Materials, Thermal Conductivity of, 595
— Specific. See *Specific Heat*
— and Thermodynamics (Review), 166
— Transmission Investigations at National Physical Laboratory, 197
— — Testing Apparatus for Insulating Materials, 595*
— Treatment Machine for Road Construction on Soils (L. R. H. Irvine), 39*
— — of Metals. See *Metallurgy*
Heater, Air, Gas-Fired (Perfecta Gas Thermostats, Ltd.), 513*
— — Gas-Fired Mobile (Serck Radiators, Ltd.), 513*
— — S.S. "Mauretania," 122
— Feed-Water. See *Feed-Water*
Heating Curves, Alloys. See *Metallurgy*
— Domestic, Advantages of Gas for, 750
— — Results Obtained with Solid Fuels, 717
— by Hot Air, 682
— Methods, Domestic, in Europe, 653*
— Stoves for Burning Lignite, 653*
— Ventilating and Air Conditioning, Fundamentals (Review), 167
— — of Buildings, 691
Heaton, F. H., on Design of Sewage Works, 750
Hedin, T., on Licence Acts, for Swedish Power-Transmission Lines, 767
Height, L. H., Self-Supporting Horizontal Pipe-Line Span, 465*
Heindlhofer, K., on Aspirating Thermocouple for Gas Temperatures, 684
Helios Grease Lubricator, 204*
Hematite Prices. See *Metal-Price Diagrams*
Henschel und Sohn, G.m.b.H., 4,400-b.h.p. Diesel-Electric Locomotive, 100*
Hepburn, H. A., on Strength of Taper-Bore Thick End Plate, 171*
Herbert, A., Ltd., Electric Utility Machine Head, 312; Chasing Attachment for 5½-in. Centre Capstan Lathe, 485*; Zeiss Toolmakers' Microscope, 547*; Investigations on Cutting Fluids for Machine Tools, 546. See *Erratum*, 580; Klopp High-Speed Hydraulic Shaping Machine, 675*
Hero of Alexandria, Writings of, 541

Héroult Arc Furnace in Steelworks, 540
Herreshoff, Capt. N. G., the Late, 98
Hertzog, E. S., on Dewatering and Drying of Coal, 460
Heywood, Dr. H., on Measurement of Fineness of Powdered Materials, 492*
Hicks, R., on Effect of Pressure on Activated-Sludge Process, 602
Higgs Motors, Ltd., Low Starting-Current Squirrel-Cage Motor, 374*
High-Temperature Tests. See *Tests (Materials)*
Highland Transport Co., Ltd., Operating Results with Producer-Gas Omnibus, 654
Highway Engineering, Annual Conference in Illinois University: Use of Joints in Concrete Pavements, by F. V. Reagel, 664; Trends in Design and Construction of Suburban Thoroughfares, by D. C. McCurdy, 664; Heavy Types of Bituminous Surfaces, by A. Anderson, 664
— Research Board, United States: Safety and Speeds as Affecting Highway Design, by F. Lavis, 663; Report on Anti-Skid Properties of Road Surfaces, 664; Relations between Curvature and Speed, by M. L. Fox, 664; Seeing on the Highway, by K. M. Reid, 664
— See also *Roads*
Hill, E. L., the Late, 530
History of Marine Steam Turbine, Parsons Memorial Lecture by S. S. Cook, 680
— of Naval Engineering in United States, 738
— of South Yorkshire Iron Industry, 1698–1756, 760.
Hoe, Market-Garden (R. A. Lister & Co., Ltd.), 67*
Hoesch Steel Sheet Piling for Cofferdam, Waterloo Bridge, 588*
Hoists, Electric (Richmond & Chandler, Ltd.), 682
— See also *Cranes*
Hokkaido Imperial University, Japan, Calendar, 256
Holes, Fitting of Shafts in. See *Gauges*
Holliday & Greenwood, Railway School of Transport, Derby, 126*
Holloway Works of Fescol, Ltd., 530
Holman Brothers, Ltd., "Scrapehauler" for Loading Rock from Mine Dump, 255*
"Holzapfel I," M.S., Gas Engine of, 537
Home Office, Inspector's Report, Factories and Workshops, 103, 105; Report on Lighting in Factories, 650; Report on Electrical Accidents and their Causes, 708
Hood, Dr. O. P., on Smoke Abatement, 280
Hookins, L. C., on High-Pressure High-Temperature Steam Installations, 505. See 451
Hörnell, Prof. P. G., the Late, 570
Hornibrook, F. B., on Vibrograph for Fresh Concrete, 232*
Horns, Motor, National Physical Laboratory Investigations on, 667
Horological Investigations at National Physical Laboratory, 297
Horseley Bridge and T. Piggott, Ltd., Welded Waterless-Type Klonne Gasholder, Dagenham, 129*
Hot-Metal Practice in Fixed Open-Hearth Furnaces, 24
Hours of Labour. See *Labour*
House, The Evolving, Vol. III, Rational Design (Review), 284
Household Electric Refrigeration (Review), 356
— Heating, Fuels for, 653*, 682, 717, 750
Housing, Ministry of Health Report, 222
Howden, J., & Co., Ltd., Forced- and Induced-Draught Fans for La Mont Boiler, 416*
Howe, W. L., on Gas in Service of Public Health, 750
Hughes, E., on B.Sc.(Eng.) Examinations of London University, 137
Hull Development Committee, Raw-Materials Survey, 137
— Museum, Model of First Priestman Oil Engine, 1887, 598
Humby, H. G., the Late, 426
Hume Concussional-Spun Concrete Pipes (J. Ellis & Sons, Ltd.), 557*
Hume-Rothery, Dr. W., on Constitution of Magnesium-Rich Alloys, 567; on Liquidus and Solidus Curves of Magnesium Alloys, 567
Humidity Control, Nomogram Method of, 57*
Humphreys, C. L. H., on Engineer's Contribution to Public Health Services, 692
Humphries, Sir H., the Late, 38
Hurlbut, F. J., on Homogeneity of Glass, 721
Hurley, J., on Purification of Sewage in Covered Filters, 692
Hutchinson, A., the Late, 256
Hyderabad, Warangel Water Supply, 448
Hydran Products, Ltd., "Hydra" Oil Burner, 443*
Hydrants, Fire, Provision and Maintenance of, 54
Hydraulectric Mortising Machine, 397*
Hydraulic Laboratory, Federal Institute of Technology, Zürich, 3*, 149*
— Machine Tools. See *Machine Tools*
— Power Plant. See *Power Plant*
— Press. See *Press* under *Machine Tools*
— River Flow Problems, 61, 165, 223, 241
— Structures (Review), 254
— Transmission Systems for Diesel Railcars, 632, 632
— Turbines. See *Turbines; Power Plant*
— Use of Scale Models in, 252
— Works, Use of Model Experiments on, 15
— See also *Hydrodynamics; Irrigation; Water*
Hydro-Aeroplane. See *Seaplanes* under *Aeronautics*
Hydrocarbons, Aromatic, Production from Phenols, Experiments on, 464
— Gaseous, Synthesis at High Pressure, 662
Hydrodynamics. See *Ship Resistance*
Hydro-Electric Power Plant. See *Power Plant*
— Extractors, Electrically-Driven (Watson, Laidlaw & Co., Ltd.), 514
Hydrogen and Carbon Monoxide, Methane Synthesis from, 603
— Fixation in Gas Manufacture, 76
— Gasification of Fuels in, Investigations on, 602
— Production, Lane Process of, 765
Hydrogenation of Coke, 602
Hydrogenation, Cracking of Tars, Fuel Research Board Investigation, 464
— Process, Fischer-Tropsch, 517
— Process, I.G. Farbenindustrie, 774

I.

I.G. FARBENINDUSTRIE High-Pressure Hydrogenation Process, 774
Ice Removal from Ontario Hydro-Electric Plant, 203
— See also *Refrigeration*
Ignitron Loading Equipment for Traction Substations (British Thomson-Houston Co., Ltd.), 428*
Illinois University, Smoke, Dust and Air Pollution, by Dr. R. Mitchell, 280; Investigation on Pressure Losses in Air Ducts, 302; Lectures on Coal Utilization, 424; Annual Conference on Highway Engineering, 664; Experiments on Friction of Railway Brake Shoes at High Speed and High Pressure, 719; Fatigue Tests of Riveted Joints, by W. M. Wilson and F. P. Thomas, 773
Illumination in Factories, Report, 650
— Investigations at National Physical Laboratory, 725
— of Roads, Investigations on, 664
— See also *Light; Lighting;* and *Lamps* under *Electric*
Imo Positive-Action Pump, 515*
Impact Stresses in Machine Parts, Absorption of, 144*
— Tests. See *Tests (Materials)*
— Wheel, from Motor Vehicles, National Physical Laboratory, Investigations on, 151
Impeller for Sewage Pump, Model Tests of, 244*
Imperial Airways, Ltd., Atlantic Flight by Seaplane "Mercury," 137; Endurance Test of Bristol Perseus XIIc Aero Engine, 763
Imperial Chemical Industries, Ltd., Cassel Salt-Bath Gas-Fired Furnace, 152*
— College of Science and Technology, London, School of Highway Engineering, 276; Department of Aeronautics, Syllabus, 374; Experiments on Flow through Nests of Tubes, 605*, 665*, 723*
Import Trade. See *Trade*
Incandescent Lamps. See *Lamps* under *Electric*
Indexing and Abstracting Technical Literature, 9. See LETTERS, 169, 342
India and Burma, Law Relating to Electrical Energy in (Review), 167
— Cawnpore, Imperial Institute of Sugar Technology, Experiments on Molasses as Road-Making Material, 321
— Import Trade of, 1937–38, Survey of, 272
— North, Floods in, 425
— River Training in, 649
— Rubber. See *Rubber*
— Store Department, London, Annual Report, 621
— United Provinces, Electricity Supply Scheme for Irrigation Pumping, 768*
— Water Supply in Warangel, Hyderabad, 448
Indian Railway Board, Annual Report, 76. See *Addendum*, 134
Indicator, "Vaposcope," for Steam Traps (H. Richter), 691*
— Water-Level, Automatic (Gent & Co., Ltd.), 626
Induction Furnaces. See *Furnaces, Electric*
— Motor. See *Motor, Electric*
Industrial Accidents. See *Accidents*
— Agreements and Disputes. See *Labour Notes*
— Chemistry. See *Chemistry*
— Development, Board of Trade Survey, 164
— Economics. See *Labour*
— Fatigue. See *Labour*
— Furnaces. See *Furnaces*
— Management. See *Works Management*
— and Municipal Planning, 109, 110
— Notes. See *Labour Notes* under *Labour*
— Planning, Problems of, 566
— Property, International Conventions Relating to, 715
— Research. See *Research*
Industries, Small, Supply of Energy for, 653*
— Training Engineering Graduates for, 249, 251, 260. See LETTERS, 299, 530
— See also *Trade* and PARAGRAPH INDEX
Ingersoll-Rand Co., Ltd., Diesel-Driven Air Compressor, 732*
Inglis, Prof. C. E., on Resonance in Relation to Mechanical Vibrations, 282; Vibration Damper for Ships, 347*
Inland Navigation. See *Navigation; Canals; Rivers, &c.*
Inoculation of Cast Irons, 743, 746*
Institute of Transport. See *Transport*
— See *Institutions*
Institution, British Standards. See *Standards*
— Royal. See *Royal Institution*
— Technical and Scientific. See *Aeronautical Society, Royal; Agricultural Engineers, British, Institution of; Agricultural Society, Royal; Air-Raid Protection Institute* (under *Aeronautics*); *Automobile Engineers, Institution of; British Aircraft Constructors, Society of; British Association; British Engineers' Association; British Foundrymen, Institute of; Chemical Engineers, Institution of; Chemical Industry, Society of; Civil Engineers, Institution of; Consulting Engineers, Association of; Electrical Engineers, Institution of; Engineers and Shipbuilders in Scotland, Institution of; Engineers, Society of; Export, Institute of; Fuel, Institute of; Gas Engineers, Institution of; Glass Technology, Society of; Iron and Steel Institute; Junior Institution of Engineers; Libraries, Special, and Information Bureaux, Association of; Marine Engineers, Institute of; Mechanical Engineers, American Society of; Mechanical Engineers, Institution of; Metals, Institute of; National "Safety First" Association; Naval Architects, Institution of; Naval Architects and Marine Engineers, Society of; Naval Engineers, American Society of; Newcomen Society; North-East Coast Institution of Engineers and Shipbuilders; Norwich Engineering Society; Patent Agents, Chartered Institute of; Petroleum, Institute of; Royal Institution; Royal Society; Rubber Industry, Institution of; Sanitary Institute, Royal; South Wales Institute of Engineers; Structural Engineers, Institution of; Supervising Electrical Engineers, Association of; Swedish Cement Association; Swedish Water-Power Association; Testing Materials, American Society for; Transport, Institute of; Water Engineers, Institution of; Welding, Institute of*
Instruments for Measurement of Instrumental Permeability, 326, 348*
— Scientific, Trend of Design in, 310, 317*
— Thickness-Measuring, Electrical, for Metal Walls, 715*
— See also *Aeronautics; Electric*
Insulation. See *Heat; Electric*
Insurance, Accident and Sickness, at Krupps, 1836–1936 (Review), 770
Intercrystalline Cracking of Boiler Plate, Investigations on, 237
Interferometer for Precise Measurement of Gauges, 266
Internal-Combustion Engines. See *Aeronautics; Engines; Motor Cars; Motor Boats: Tractors*
International Air Transport, 109
— Building Club, London, 219
— Chemical Congress. See *Chemical Congress, International*
— Conference on Documentation, Oxford, 50, 389. See LETTER, 458
— — of Naval Architects and Marine Engineers. See *Naval Architects and Marine Engineers, International Conference of, London*
— Conventions Relating to Industrial Property, 715
— Crisis and Engineers, 423, 479. See 250, 395. See LETTERS, 457, 530
— — and Road Transport, 591
— Electrotechnical Commission, International Electrotechnical Vocabulary, 684
International Engineering Concessionaires, Ltd., Oemichen Automatic Continuous Calliper Gauge, 115*; Greenly Inductive Relay, 459*
— — Congress, Glasgow. See *Engineering Congress, International, Glasgow*
International Harvester Company of Great Britain, Ltd., 14-h.p. Paraffin Tractor, 31*
— Situation, Register of Engineers for National Service, 395. See 250, 423. See LETTERS, 457, 479, 530
— Temperature Scale, National Physical Laboratory, Investigations on, 553
— Trade. See *Trade*
Inventions. See *Patents*
Ionisation Chamber, Air-Wall, 623*
Iran, Economic and Commercial Conditions in, Report, 156
Iraq, Economic and Commercial Conditions in, Report, 250
Ireland, Northern, Transport Reorganisation in, Report, 651
Iron Alloys. See *Metallurgy* and *Steel*
— Commercially-Pure, Specific Heat-Temperature Curves of, 580
— Corrosion. See *Corrosion*
— Founding in England, 1490-1890, 632
— Foundry. See *Foundry*
— Furnaces. See *Furnaces*
— Heat Treatment. See *Metallurgy*
— Industry in South Yorkshire, 1698–1756, 760
— Magnetic Testing of, Harmonic Power in, 326, 431*
— Manufacture. See *Furnaces, Blast*
— Pig, Prices. See *Metal-Price Diagrams*
— Pure, Magnetic Properties of, Investigations on, 326, 488*
— Rolling Mills. See *Rolling Mills*
— and Steel Exchange, London, Closing of, 758
— — Industry, Development of, 519. See 509
— — Industry in Great Britain, Developments in, 80
— — Industries, Statistics, 618

Iron and Steel Institute:

Ablett Prize, 255, 539
Spring Meeting (1938), *London:*
Atmospheric Corrosion of Galvanised Iron Wire and its Bearing on Specification Testing, by C. E. Richards, 27, 54*
See also vol. cxlv
Spring Meeting (1938), *London: Symposium on Steel Making (Acid and Basic Open-Hearth Practice):*
Hot-Metal Practice in Fixed Open-Hearth Furnaces, by W. Geary, 24
Cold-Metal Practice in Fixed Basic Open-Hearth Furnaces, by J. Gibson, 119
Acid Open-Hearth Steel-Melting Practice, by T. M. Service, 148
Open-Hearth Furnace Design and Control, by R. J. Sarjant, 176
See also vol. cxlv
United States Meeting:
Programme, 199
Postponement of, 364
Autumn Meeting, London:
Programme, 420
Retiring Officers, 539
American Electric-Furnace Practice, by W. M. Farnsworth and E. R. Johnson, 539
Electric Furnaces in European Steelworks, by D. F. Campbell, 539
Specific Heat-Temperature Curves of Commercially-Pure Iron and Certain Plain-Carbon Steels, by Dr. C. Sykes and H. Evans, 580
Modern Rolling-Mill Practice in America (Exclusive of Continuous Strip and Sheet Mills), by Q. Bent, 580
Development of Continuous Strip Mills, by D. Eppelsheimer, 580
Third Report of Steel-Castings Research Committee, 548. See 581.
Iron and Steel Works. See *Works*
— — See also PARAGRAPH INDEX
— Tests. See *Tests (Materials)*
— in Water, Removal of, Investigations on, 396
— Welding. See *Welding*
— Wrought, Decline in Manufacture of, 520
— See also *Cast Iron; Steel; Pig Iron; Metallurgy*
Ironfounding in England, 1490–1890, 632
Ironwork, Structural. See *Bridges; Steel; Structures*
Irrigation in Egypt, Power Supply for, 453
— Pumping Plant, United Provinces in India, 768*
— See also PARAGRAPH INDEX
Irvine, L. R. H., Heat-Treatment Machine for Road Construction on Soils, 39*
Isofuse Switch, 662*
Ison, H. C. K., on Corrosion of Coal-Tar Stills, 333, 396
Italian Destroyers "Fuciliere" and "Ascaro," Launch of, 478
— Mercantile Marine, Position of, 109
— Submarines "Barbarigo" and "Emo," Launch of, 199
— Torpedo Boats "Circe" and "Calipso," Launch of, 219
Italy, Northern, Rural Electricity Supply, 499
— Producer-Gas Lorries in, 654
— Shipbuilding in, 109

J.

JAKEMAN, C., on Friction of Oscillating Bearing, 170
James Cycle Co., Ltd., Petrol-Driven 15-cwt. Industrial Truck, 292*
Jamieson, J., on Production of Free-Burning Coke, 659
"Janus," H.M. Destroyer, Launch of, 598
Japan, Hokkaido Imperial University, Calendar, 256
Japanese Electric Railways, Power Supply for, 709
Jaster, J., on Developments in Brick Roads, 233
Jenkins, R., on Copper Mining in Lake District, 81; on Ironfounding in England, 632
"Jervis," H.M. Flotilla Leader, Launch of, 336
Jet, Petrol, National Physical Laboratory Investigations on, 198
Jigs and Fixtures (Review), 771
Johnson, E. R., on American Electric-Furnace Practice, 539
Johnson Metal Co., Ltd., Helios Grease Lubricator, 204*
Johnson, S. H., & Co., Ltd., Hydraulic Filter Press, 627*
Joints, Contraction and Expansion, in Concrete Roads, 664
— Dawson, Welded, for High-Pressure Steam Pipe, 505*
— Fillers for Brick Roads, 233
— Riveted, Fatigue Tests of, 773
Jones, E. H. (Machine Tools), Ltd., U.S. Multi-Purpose Milling Machine, 576*
Jones, J. L. B., on Operating Experience with Junkers Aero Engines, 472. See 315*
Jones, T. C., & Co., Ltd., 1-ton Mobile Crane, 399*
Journals. See *Bearings*
Jugoslavia. See *Yugoslavia*
Jumo 205 C, 600-h.p., Six-Cylinder Aero Engine, 720*
— 211, 800-1,200-h.p. Aero Engine, 487*
Jump in Rifle Barrels, Experiments on, 45
Junior Institution of Engineers, Measurement of Mechanical Power, by Dr. C. V. Drysdale, 69*; Status, Qualifications and Remuneration of Engineers, by Dr. H. Chatley, 616; Presidential Address, by Sir C. Bressey, on Roads and Traffic, 710
Junks, Chinese, at Science Museum, 566
Junkers Co., Heavy-Oil Aeroplane Engines, Operating Experiences with, 315*. See LETTER, 472
Junkers Flugzeug und Motorenwerke A.-G., Ju 90 Aeroplane, 487*
— Jumo 205 C, 600-h.p., Six-Cylinder Aero Engine, 720*
— — 211, 800-1,200-h.p., Aero Engine, 487*
Jůza, Dr. J., on Equation of State for Steam, 1*, 34*

K.

KANSAS CITY BRIDGE CO., Piers for Blue Water International Bridge, 377*
Katharometer, Improvements in, 319
Keeling, G. W., on Guild of Friends of Queen Mary College, 169
Keillor, J., on Recent Developments of the Gas Industry in Canada, 109
"Kelly," H.M. Flotilla Leader, Launch of, 590
Kelsall, A. C., on Supply of Craftsmen, 98; on Pressure of Mixture of Saturated Steam and Air, 674*
Kenneford, A. S., on Tensile Stresses in a Bearing Metal, 235*, 295*. See LETTER, 299*. See 611*
Kent, Sir W. G., the Late, 598
Kessler, O., on Manufacture and Gauging of Lathe Leadscrews, 632*
Khanki Coal-Tar Paint for Steel Work, 276
Kidman & Sons, Ltd., Apsley Railway Station, 402*
Kidner, P. C., on Motor-Car Development, 481
Kilns, Cement, Dust and Gas Emission from, 138
— Seasoning Treatments on Teak, Report, 52
King, A. J., on Reduction of Structure-Borne Noise, 124, 198*
King, G. W., Ltd., Selective Conveyor Installation, Morris Engine Works, Coventry, 25*
King, Dr. J. G., on Production of Active Carbon from Bituminous Coal, 408; on Production of Free-Burning Coke, 659
King's College, London, Faculty of Engineering, Syllabus, 190; Lectures on Steam-Boiler Plant, 506; Experiments on Flow through Nests of Tubes, 605*, 665*, 723*
— Cross Underground Station, Reconstruction of, 265*, 296*, 386*. See *Erratum*, 444
Kingston-on-Thames Power Station, Fire, 739

"Kingswood," S.S., Explosion of Auxiliary Boiler, 321
Kinzie, P. A., on 14-ft. Butterfly Valve, Boulder Dam Power House, 59*, 179*, 239*
Kirchner & Co. (London), Ltd., Petrol-Driven Chain Saw, 372*
Kitchen Car, London-Harwich Train, 456*
Kitchen and Wade, Ltd., 12-ft. Radial Drilling Machine, 81
Kitsons of Leeds, 1837–1937, History of, 338
Klement, V., the Late, 389
Klonne Gasholder, Welded Waterless-Type (Horseley Bridge and T. Piggott, Ltd.), 129*
Klopp, F., High-Speed Hydraulic Shaping Machine, 675*
Knight, H. E., Electrical Equipment, Corby Steel-Tube Plant, 469*
Knowledge, Mobilisation of, 9. See LETTERS, 169, 342
Kodak, Ltd., Refrigeratorfor Optical Works, 655
Köster, Prof. W., on Acoustic and General Methods of Non-Destructive Testing, 662
Kratz, Prof. A. P., on Pressure Losses in Air Ducts, 302
Krupps' Accident and Sickness Insurance Schemes, 1836-1936 (Review), 770
Kryn & Lahy (1928), Ltd., 40-ton Annealing Furnace for Steel Castings, 434*

L.

LA MONT Boiler Installation, Cathcart Works, G. & J. Weir, Ltd., 414*, 504*; Tests, 654
Laboratory, Froude, National Physical Laboratory, Work of, 338*, 370
— Glassware, National Physical Laboratory, Investigations on, 299
— Metallurgical, Sir Robert Hadfield, Sheffield University, 362*
— Research, Forest Products, Report on Dry Rot in Wood, 463
— — Institution of Automobile Engineers, Work of, 107, 397
— — United States Naval, Electro-Magnetic Testing of Steel Plates, 141
— Road Research, Investigations by, 380, 435
— Water-Examination, Metropolitan Water Board, 502*
— See also *National Physical*
Labour :
Factory Act, 1937 (Review), 254
— and Workshops, Home Office Inspector's Report, 193, 195
Industrial Accidents. See *Accidents*
— Health Research Board's Annual Report, 655
Krupps' Accident and Sickness Insurance Schemes, 1836-1936 (Review), 770
Labour Notes, 8, 38, 81, 99, 127, 157, 186, 215, 242, 273, 301, 344, 361, 390, 417, 444, 473, 516, 543, 556, 585, 612, 650, 673, 701, 731, 759. See PARAGRAPH INDEX
Protection of Workmen against Eye Injuries, 20
Rest Periods during Working Hours, 9
Trade Schools and Training of Craftsmen, 98
Lacy-Hulbert & Co., Ltd., Automatic Motor-Driven Air-Compressor Set, 529*
Ladder, Steel, 100-ft. Turntable, for London Fire Brigade, 23*
Lagging Materials. See *Heat Insulation*
Laing Lecture on Molecular Basis of Strength of Materials, 593
Lakes, Nitrogen Balance of Water in, 691
— Windermere, Motor Launch "Swan," 72
Lamps, Electric. See *Electric*
Lanark, Earnock Colliery, Accident from Electric Cable in, 367
Lancashire Steel Corporation, Ltd., Hot-Metal Practice in Fixed Furnaces, 24
Lancaster-Jones, E., on Evaluation of Scientific and Technical Periodicals, 707
Lanchester, Dr. F. W., on Energy Balance-Sheet of Gas Engine, 137; Seven-Figure Logarithmic Tables, 427
Lander, H. N. H., on Bacteriological and Chemical Control of Public Water Supply, 54
Lane Process of Hydrogen Production, 765
Langmuir, Dr. I., on Molecular Films, 710
Lanz Tractor Co., Ltd., Tractor Binder, 96
Larner-Johnson Water Valves, 114
Larsen, B. M., on Aspirating Thermocouple for Gas Temperatures, 684
Latent Heat of Fusion of Aluminium, 594
Lathes. See *Machine Tools*
Latil Industrial Vehicles, Ltd., Producer-Gas Forestry Tractor, 66*
Launch, Motor. See *Motor Boat*
— and Trial Trips, 12, 52, 72, 102, 160, 218, 276, 304, 334, 364, 392, 448, 476, 506, 534, 589, 617, 705, 734, 762
Laure, Y., on Measurement of Flame Temperature, 683
Laurel High-Pressure Mechanical Oil Pump, 777*
Laurence Scott and Electromotors, Ltd., Traction Motors for 900-h.p. Diesel-Electric Locomotives, 48; Electric Motors and Winches, Drag-Suction Dredger "Fu-Shing," 497, 579*, 639
Lavis, F., on Safety and Speed and Road Design, 663
Law Vertical Hammer Mill, for Grain, 26*
— See *Legal; Labour; Patents*
Lawson, W. & F., Explosion of Steam-Jacketed Digester, 147
Le Grand, Sutcliff & Gell, Ltd., De-Mudding Borehole at Slough, 20
Lea, Prof. F. C., on Torque Converter for Motor Cars, 268*. See 281, 482
Lead, Action of Water on, Investigations on, 396
— Melting Furnace, Portable (M. Sievert), 284
— Mining in Yugoslavia, 685
— Prices. See *Metal-Price Diagrams*
— Production in Canada, 1937, 373
Leadscrew, Lathe, Manufacture and Gauging of, 832*
Leather Belts, National Physical Laboratory Investigations on, 108*
Lebanon and Syria, Economic Conditions in, Report, 604
Lee, Sir G., Mechanical Equipment, Mount Pleasant Sorting Office, London, 353*, 437*, 523*, 635*, 698*
Lee Guinness Hydro-Pulsator Co., Ltd., Car-Washing Pump with Pulsating Delivery, 288*
Leeds University, Gas Researches at, 569, 602
Legal :
Engineering Law (Review), 183
Factories Act, 1937, Requirements of, 193, 195
— — 1937 (Review), 254
— — 1937, Rest Periods during Working Hours, 9
Labour Legislation. See *Labour*
Law Relating to Electrical Energy in India and Burma (Review), 167
Legislation regarding British Roads, 370, 436
Licence Acts for Swedish Power-Transmission Lines, 767
Patent Law. See *Patents*
United States Civil Aeronautics Act, 1938, 350
See also PARAGRAPH INDEX
Legislation. See *Legal; Labour; Patents*
Leicester, Stoney Stanton, Concrete-Pipe Works (J. Ellis & Sons, Ltd.), 557*
Length, Standard of, National Physical Laboratory Work on, 267
Leonardo da Vinci, Writings and Inventions of, 543
Lepper, G. W., on Search for Oil in Britain, 593
Lessing, Dr. R., on Elimination of Sulphur from Flue Gases, 499
Lester, H. H., on Non-Destructive Testing, 652
Letters to the Editor, 9, 137, 169, 187, 214, 299*, 342, 457, 472, 505, 530, 598, 616
— Sorting Office, Mount Pleasant, London, Mechanical Equipment at, 353*, 437*, 523*, 635*, 698*
Level, Universal (P. Philipp), 348
Levenger, M., the Late, 735
Levinstein, Dr. H., on Sir W. H. Perkin and Coal-Tar Dye Industry, 651
Libraries, Special, and Information Bureaux, Association of, Oxford Conference, 50, 389. See LETTER, 458; Evaluation of Scientific and Technical Periodicals, by E. Lancaster-Jones, 707
Lifeboat, Motor, Stainless-Steel, Ship's, (Mechans, Ltd.), 154*
— — 1½-kW Oil-Driven Electric Generator for, 599*
— Saving Equipment for United States Ships, Rules for, 118
— — Safety at Sea and Ship Construction, 87
Light Alloys. See *Alloys* under *Metallurgy*
— Intensity, Unit of, 725
— and Sound, Combination Tones in, 593
— Spot, for Welding Work (Philips Industrial (Philips Lamps, Ltd.)), 761
— See also *Spectrum*
Lighting in Factories, Report, 650
— Gas. See *Gas*
— Investigations at National Physical Laboratory, 725
— of Roads, Investigations on, 664
— Street, Power Supply for, 709
— System, Corby Steel-Tube Plant, 471*
— See also *Lamps* under *Electric*
Lignite, Heating-Stoves Burning, 653*
Lilienberg, A., on Municipal and Industrial Planning, 109
Lime, Action on Refractories, 658
Limestones of Ontario, Report, 305
Limits and Fits for Cylindrical Work, Questionnaire on, 137
— Gauges. See *Gauges; Gauging*
Lincoln Electric Co., Ltd., Fume Extractor for Welding Operations, 159*
Lincoln, J. F., Arc-Welding Foundation, Competition Awards, 369
Lind, P., & Co., Ltd., Waterloo-Bridge Reconstruction, 587*
Lindley, J. Browett (1931), Ltd., 1,000-b.h.p. Vee-Belt Drive for Air Compressor Tests, 140*. See *Addendum*, 191; Air Compressor with Automatic Control, 760*
Liner Concrete Machinery Co., "Giraffe" Crane, 444
— See *Steamers*
Liquid-Culture Tank (Electro-Horticultural Equipment Co., Ltd.), 96*
— Fuel. See *Oil Fuel*. See also *Motor; Petrol*
— Storage of, Code for Design of Ferro-Concrete Structures for, 289
Lister Dumping Valves, Drag-Suction Dredger "Fu-Shing," 495*, 639*
Lister, R. A., & Co., Ltd., Grass Comb, 67*; Market-Garden Hoe, 67*; 1-h.p., to 16-h.p. Air-Cooled Petrol Engines, 682
Literature, 91, 166, 182, 209, 254, 283, 356, 455, 610, 640, 696, 769. See LITERATURE INDEX
— Technical, Indexing and Abstracting of, 9. See LETTERS, 169, 342
Lithgow, Sir J., on Shipbuilding and National Economics, 33
— Propeller Tunnel, Froude Laboratory, Investigations with, 370
Litigation. See *Legal; Labour; Patents*
Liverpool Corporation, Clarence Dock Power Station Extensions, 483
Livesey-Type Manholes for Gasholder, Sheffield, 357*
Lloyd, A. H., on Cutting Fluids and Machine Tools, 546. See *Erratum*, 580
Lloyds & Co. (Letchworth), Ltd., Gang-Mower with Pneumatic Tyres, 644*; 3-h.p. Petrol-Driven Cultivator, 682
Lloyd's Register, Annual Report, 592
— — Book, 141
— — Statistics of Vessels under Construction, 77, 453
— — Wreck Returns, 132, 774
Loader, Snow, Spiral-Feed (Barber-Greene Co.), 200*
Loading Machines for Strip Mining of Bituminous Coal, 229*
— and Shovelling Machine for Underground Work (British Conway Shovels, Ltd.), 545*
Local Authorities. See *Municipal*
Lockheed Control for R.M. Diesel-Engined Picket Boat, 142*
Lockouts. See *Labour; Labour Notes*
Locomotive, Atlantic-Type, Conversion of, London and North Eastern Railway, 127
— Constructed by Kitson & Co., 338
— 900-h.p. Diesel-Electric, Buenos Ayres Great Southern Railway, 48
— 4,400-b.h.p., Diesel-Electric, Roumanian State Railways, 100*
— Electric, for Japanese Railways, 709, 710
— Historic, Euston Station Exhibition, 369. See 594
— on Indian Railway, 76. See *Addendum*, 134
— Operation in United States, 136
— Shunting, 78-h.h.p., Oil-Engined (Associated Equipment Co., Ltd.), 772*
— Steam (Review), 254
— See also *Railways* in PARAGRAPH INDEX
Loded Cast Irons, Properties of, 710
Loewy Engineering Co., Ltd., Heavy Weldless-Steel Tube Plant, Chesterfield, 713
Löfgren, G., on Power-Transmission Problems, 767
Logarithmic Tables, Seven-Figure, Lanchester's, 427
London, Alexandra Palace Television Station, 565
— Auxiliary Fire Service, Formation of, 17, 535
— and Birmingham Railway, Centenary of, 368, 594
— Bournemouth Service Southern Railway, Rolling Stock for, 177*
— City of, College, Lectures on Iron and Steel, 220
— County. Underground Water Supplies, 713
— — Council, Contract Conditions, 74; Waterloo-Bridge Reconstruction, 587*; Development of South Bank of River Thames, 593; Duplication of Blackwall Tunnel, 680
— Fire Brigade, 100-ft. Turntable Ladder, 23*
— — Service, Auxiliary, Formation of, 17, 535
— Imperial College of Science and Technology, School of Highway Engineering, 276; Department of Aeronautics, Syllabus, 374; Experiments on Flow through Nests of Tubes, 605*, 665*, 723*
— India Store Department, Annual Report, 621
— International Building Club, 219
— Iron and Steel Exchange, Closing of, 758
— King's College, Faculty of Engineering, Syllabus, 190; Lectures on Steam Boiler Plant, 506; Experiments on Flow through Nests of Tubes, 605*, 665*, 723*
— Midland and Scottish Railway, Lake Motor Launch "Swan," 72; School of Transport, Derby, 126*; Report on Oakley Junction Accident, 214; Trent Valley Junction Reconstruction, 225*; Report on Rutherglen Railway Accident, 256; Calculation of Train Running Times, 282; Apsley Station 402*; Centenary Dinner, 594. See 368
— Mount Pleasant Sorting Office, Mechanical Equipment of, 353*, 437*, 523*, 635*, 698*
— and North Eastern Railway, Report on Castlecary Accident, 16; "Flying Scotsman" Trains, 41*; Record Speed of "Coronation" Train, 74; Conversion of Atlantic Type Locomotive, 127; Train for London-Harwich Service, 456*; Relaying Newcastle-upon-Tyne Junction, 584*
— Northampton Polytechnic, Prospectuses, 275; Investigations on Incremental Magnetic Measurements, 406*, 573*; Lectures on Electro-Deposition, 706
— Passenger Transport Board, New Rolling Stock for Underground Railways, 51*; Waterloo Tube-Railway Accident, Report, 71; Reconstruction of King's Cross Underground Station, 265*, 296*, 386*. See *Erratum*, 444; Charing Cross Underground Railway Accident, Report, 396; Aldgate East Station Reconstruction, 531*; Annual Report, 564
— Port of, Annual Report, 251
— Queen Mary College, Guild of Friends of, 169
— Regent-street Polytechnic, Prize Distribution, 586
— School of Economics, Department of Business Management, Report, 189
— Underground Railways. See *Underground*
— University B.Sc. (Eng.) Examinations, 137
— — College, Faculty of Engineering, Prospectus, 71; Lectures on Geology, 506; Calendar, 570
— Water Supply, Statistics and Examination of, 502*
Longbridge "Shadow" Factory, Aeroplane Production at, 139*
— Works, Austin Motor Co., Ltd., 48, 78
Longitudinal Bulkheads. See *Water-Tight Subdivision*
Lorries. See *Motor Lorries; Tractors*
Loser Vibration-Neutraliser for Ships, 347*
Lovett, M., on Purification of Sewage in Covered Filters, 692
Low-Temperature Carbonisation of Coal. See *Coal*
— Wincobank, Sheffield, Four-Lift Spiral-Guided Gasholder, 323*, 357*
Lubricant, Graphited, Action on Bearing Surface, 91*
Lubricating Greases: Their Manufacture and Use (Review), 610
— Oils. See *Oils*
Lubrication Battery, Multipoint, for Soft Grease (Tecalemit, Ltd.), 227*. See *Addendum*, 272
— National Physical Laboratory Investigations on, 64*
— Research Committee, Report on Friction of Oscillating Bearing, 170
— System for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 670*
Lubricator, Grease, Multi-Point High-Pressure (Wetzel und Schlosshauer), 204*
Lucas Furnaces, Ltd., Gas-Fired Heat-Treatment Furnace, 156*
Lucretius, Scientific Views of, 541
Luftschiffbau Zeppelin G.m.b.H., Airship "Graf Zeppelin," 751*
Lugt, G. J., on Whirl of Diesel-Engine Crankshafts, 21*. See 6
Luminous Intensity, Unit of, 725
Lundberg, H. A., on Swedish Cooking Stoves, 682
Lurgi Process and Gas Manufacturing, 76
Lynde, G. G., the Late, 187
Lysaght, J., Ltd., Hot-Metal Practice in Fixed Furnaces, 24

M.

MACADAM. See *Roads* and *Tar*
Mac. See also *Mc*
Machine Design, Fundamentals (Review), 696
— — and Research on Materials, 143*
— Shops. See *Works* and *Machine Tools*
— Testing. See *Testing Machines* and *Tests* (*Materials*)
Machine Tools :
Bending Machines for Wood, 389
Boring and Facing Machine, 72-in. Horizontal (G. Richards & Co., Ltd.), 202*
Chasing Attachment for 5½-in. Centre Capstan Lathe (A. Herbert, Ltd.), 485*
Chucks, Magnetic, Manufacture of (J. Neill & Co. (Sheffield), Ltd.), 332
Cutting Properties of Magnesium Alloys, 170
— Tools, Action of, 659*
Die-Casting Machines. See *Die Casting*
Dovetailing Machine, Multi-Spindle, for Wood (R. S. Brookman, Ltd.), 398*
Draw-Bench, Triple-Cylinder, Hydraulic (H. Berry & Co., Ltd.), 713
Drill, Electric, ¼-in. Portable (Black & Decker, Ltd.), 748*
Drilling Machine, Radial, with Pre-Selective Gear (Raboma-Maschinenfabrik Herman Schoering), 375*. See *Addendum*, 477
— — 12-ft. Radial (Kitchen & Wade, Ltd.), 81
Facing and Boring Machine, 72-in. Horizontal (G. Richards & Co., Ltd.), 202*
Grinding Practice (Review), 182
Hacksaw-Frame Manufacture (J. Neill & Co. (Sheffield), Ltd.), 332*
Hammer, Chipping, Pneumatic (Broom & Wade, Ltd.), 626
— Drop, for Sheet-Metal Aircraft Parts (Brett's Patent Lifter Co., Ltd.), 52*
Hydraulic Press. See *Press* (below)
Jigs and Fixtures (Review), 771
Lathe, 5½-in. Centre, Capstan, Chasing Attachment for (A. Herbert, Ltd.), 485*
— Design of Bed for, 144*
— ¼-in. Four-Operation, Automatic (Brown & Ward, Ltd.), 714*
— Leadscrews, Manufacture and Gauging of, 832*
— with "P.K." Variable-Speed Friction Drive, 730*
— "Procedo," Rotating Centre for (R. Prozesky), 508
Limit Gauging. See *Gauging*
Machine Head, Utility, Electric (A. Herbert, Ltd.), 312
— Shop Management. See *Works Management*
— Tool Anchorage, Plastic Asbestos for (Philplug Products, Ltd.), 348*
— — Cam-Operated Switch for (Brookhirst Switchgear, Ltd.), 749*
— — Cutting Fluids for, Investigations on, 546. See *Erratum*, 580
— — Functions of Cutting Fluids for, 659*
— Work, Tolerances in. See *Gauging*
Milling Cutters and Reamers, Specification, 304
— — Small, Manufacture of (F. Gilman (B.S.T.), Ltd.), 491*
— — Spacers "Artus" (British Automotive and Chemical Industries, Ltd.)517
— Machine, Multi-Purpose (U.S. Tool Co., Inc.), 576*
Mortising Machine "Hydraulectric," for Wood (R. S. Brookman, Ltd.), 397*
— — for Wood (T. Robinson & Son, Ltd.), 400*
Moulding and Planing Machine, for Wood (Danckaerts Woodworking Machinery, Ltd.), 397*
— — Machine for Wood (J. Sagar & Co., Ltd.), 528*
Planing and Surfacing Machine for Wood (T. Robinson & Son, Ltd.), 399
Pneumatic Hammers. See *Hammers* (above)
Press, Double-Crank, for Plastic Moulding (Götz, Gebr.), 274*
— Hydraulic, Vertical, Billet-Piercing (Davy and United Engineering Co., Ltd.), 713
Profiling Machine, Gas (Sir W. Arrol & Co., Ltd.), 327*
Riveting Machine, Hydraulic, Electric-Welded (Sir W. Arrol & Co., Ltd.), 327
Saw, Band, for Wood, Totally-Enclosed (T. Robinson & Sons, Ltd.), 400*
— Chain, Portable, Petrol-Driven, for timber (Kirchner & Co. (London), Ltd.), 372*
— Circular, 26-in. for Wood (Wilson Brothers (Leeds), Ltd.), 443*
— See also *Hacksaw* (above)
Sawing Machines, Contour (Continental Machine Specialities, Inc.), 83*
— — Electro-Hydraulic Cross-Cut, for Wood (Wadkin, Ltd.), 398*
Screw Thread-Cutting Attachment for Automatic Screw Machines (B.S.A. Tools, Ltd.), 774*
Shaping Machine, High-Speed Hydraulic (F. Klopp), 675*
Shearing Machine "Pullomax," for Sheet Metal (Hancock & Co. (Engineers), Ltd.), 625

Machine Tools—*continued.*
- Shears, Cropping, for Two-High Hot-Rolling Mill, 20*
- Surfacing and Planing Machine for Wood (T. Robinson & Son, Ltd.), 399
- Tenoning Machine, Electrically-Driven (T. Robinson & Son, Ltd.), 259*
- — — for Railway Coachwork (T. Robinson & Son, Ltd.), 745*
- Toolmakers' Microscope (C. Zeiss), 547*
- Woodworking Machinery, Bending Machinery for Wood, 389
- — — at Building Trades Exhibition, 372*, 397*, 443*, 528*
- — — Chain Saw, Portable Petrol-Driven (Kirchner & Co. (London), Ltd.), 372*
- — — 26-in. Circular-Saw Bench (Wilson Brothers (Leeds), Ltd.), 443*
- — — Double End-Tenoning Machine for Railway Coachwork (T. Robinson & Son, Ltd.), 745*
- — — Dovetailing Machine, Automatic Multi-Spindle (R. S. Brookman, Ltd.), 398*
- — — Mortising Machine "Hydraulectric" (R. S. Brookman, Ltd.), 397*
- — — Mortising Machines (T. Robinson & Son, Ltd.), 400*
- — — Planing and Moulding Machine, Four-Cutter (J. Sagar & Co., Ltd.), 528*
- — — Planing and Moulding Machine, Six-Cutter (Danckaerts Woodworking Machinery, Ltd.), 397*
- — — Planing and Surfacing Machine (T. Robinson & Son, Ltd.), 399
- — — Researches on the Machining of Wood, 310
- — — Saw, Band, Totally-Enclosed (T. Robinson & Son, Ltd.), 400*
- — — Saw, Cross-Cut, Electro-Hydraulic (Wadkin, Ltd.), 398*
- — — Tenoning Machine, Electrically-Driven (T. Robinson & Son, Ltd.), 259*

See also PARAGRAPH INDEX

Madison-Kipp Company, Die-Casting Machines, 294*

Magnesium Alloys. See *Alloys* under *Metallurgy*

Magnetic-Chuck Manufacture, J. Neill & Co. (Sheffield), Ltd., 332*

— Examination Apparatus, Philips-Suschyzki, 626

— Materials, Soft, Investigations on, 326, 488*

— Methods of Testing Materials, 652

— Tests, Instruments for Measuring Incremental Permeability, 326, 348*

— Testing of Iron, Harmonic Power in, 326,431*

— — of Rings and Small Transformer Cores, 573*

Magnetism and Electricity (Review), 455

— Incremental, Ballistic Measurements in, 326, 406*

Main-Rhine-Danube Canal, 118*

Main, Electric. See *Cables* under *Electric*

— Gas, Extinguishing Fire in, 718

— Steam, for District Heating Systems, 280

Malt Mill, Two-High (R. Boby, Ltd.), 330*

Man Power of Nation, Organisation of, 479. See 250, 395, 423. See LETTERS, 457, 530

Management, The New (Review), 284

— of Works. See *Works Management*

Manchester Education Authority, Mechanical and Electrical Engineering Courses in Manchester, 275

— H.M. Cruiser, Trials of, 191

— Municipal College of Technology, Prospectus, 334

Manchoukuo, Mukden, Tower-Type Winding Plant, Fushun-Ryuho Colliery, 671*

Manganese Bronze and Brass Co., Ltd., Cement-Sand Preparation Plant, 430*

Manhole, Livesey Type, for Gasholder, Sheffield, 357*

Manufacture, Scientific Methods in. See *Works Management*

— See also *Trade*

Marconi College, Chelmsford, Summer School at, 275

Marine Auxiliary Machinery, S.S. "Canton,"458

— — Machinery, M.S. "Carnarvon Castle," 89

— — Machinery, Drag-Suction Dredger "Fu-Shing," 497 579*, 639*

— — Machinery, S.S. "Mauretania," 123

— — Machinery, Model Test of Mounting for Diesel Engine, 315

— — Machinery, M.88. "Ramb I" and "Ramb IV," 217*

— — Machinery for United States' Ships, Rules for, 117

— — Machinery, Vertical Geared Steam Turbine (G. & J. Weir, Ltd.), 158*

— — Machinery, Worm-Geared Electric Winch (Carron Co.), 515*

— Boilers. See *Boilers*

— Engines. See *Engines; Turbines; Marine Propulsion*

— Engineers, Institute of, Examination Data, 275; Presidential Address, by Sir J. Foley, on the State and the Marine Engineer, 425; Gas Engines for Small Craft, by J. F. Gibbons, 537. See LETTER, 616; Herbert Akroyd Stuart Award, 686; "Loded" Cast Irons, by H. J. Young, 710; Experiment in Noise Reduction in Ships, by R. S. Robinson, 766

— — and Naval Architects, American Society of. See *Naval Architects*

— — and Naval Architects, International Conference of. See *Naval Architects and Marine Engineers, International Conference of, London*

— Engineering, Influence of Admiralty and Board of Trade on, 425

— — Lloyd's Register Annual Report, 592

— — Lloyd's Statistics, 77, 453

— — Output in 1938, 735, 763. See also vol. cxlvii

— — Regulations for United States Ships, 117

— — Trends in, 87

— Propulsion, Double-Acting, Two-Stroke, Harland-B. & W. Engines, M.S. "Carnarvon Castle," 89

Marine Propulsion, Geared Turbines, S.S. "Mauretania," 121*, 169

— — Geared Turbines, S.S. "Queen Elizabeth," 383

— — Harland-B. & W. Diesel Engines, M.S. "Durban Castle," 744

— — History of Naval Engineering in United States, 738

— — History of Steam Turbine for, 680

— — Investigation at Froude Laboratory, 338, 370

— — Machinery for United States Ships, Rules for, 117

— — Marine Engine Output for 1938, 735, 763. See also vol. cxlvii

— — 7,200-b.h.p. Oil Engines, M.88. "Ramb I" and "Ramb IV," 216*

— — Oil Fuel for. See *Oil Fuel*

— — 160-b.h.p. Petter "Atomic" Diesel Engine, Royal Research Ship "Research,"226

— — Report on Use of Coal for, 165. See LETTER, 214

— — Ship Vibration from Machinery, 283, 345*, 377

— — Single-Reduction Geared Turbines, S.S. "Canton," 458

— — Steam Machinery for Steam Drifters, 599*, 662*

— — 4,500-h.p. Triple-Expansion Engines, Drag-Suction Dredger "Fu-Shing," 495*, 579*, 639*

— — 12,500-b.h.p. Twelve-Cylinder Sulzer-Diesel Engine, M.S. "Oranje," 418*

— — Types of Machinery in Use, 87

— — Use of Gas Engines for, 537. See LETTER, 616

— — Work of Sir Charles Parsons in, 680

— — See also *Engines; Turbines; Propellers; Ship Resistance;* and PARAGRAPH INDEX

— Turbines. See *Turbines, Steam; Marine Propulsion*

Markets. See *Trade* and PARAGRAPH INDEX

Markham Colliery, Derbyshire, Electrical Accident in, 367

Märkischen Elektricitäts A.-G., Deichow Hydro-Electric Plant, 36*

Marks, Lord, the Late, 400

Marsh, A., on Smoke Abatement with Solid Fuel, 654

Marshall, P., & Co., Ltd., Model Engineer Exhibition, 374

Marshall, Sons & Co. (Successors), Ltd., Threshing Machine on Pneumatic Tyres, 68*

Martin, A. E., Experiments on Flip in Rifles, 45

Masaryk Academy of Work, Czechoslovakia, Steam Research at, 1*, 34*

Mason, C. A., on Noise from Transformers, 521*

Mason, C. C., on Trend of Instrument Design, 317*. See 310

Mason, J. H. H., Aldgate East Station Reconstruction, 531*

Massif Central Hydro-Electric Plants and Paris Electricity Supply, 350*, 431*

Mast, Mooring, Mobile, for Airship "Graf Zeppelin," 654*

Materials, Joint Committee on, Discussion on Non-Destructive Testing: Programme, 140, 261; Magnetic and Electrical Methods of Testing, by Dr. A. P. M. Fleming, B. G. Churcher and Dr. R. Berthold, 652; X-Ray and Gamma-Ray Methods of Testing, by Dr. V. E. Pullin and J. E. de Graaf, 652; Acoustic and General Methods of Testing, by Dr. S. F. Dorey, Dr. F. Förster and Prof. W. Köster, 652; Non-Destructive Testing, by H. H. Lester, B. L. Sandford and W. L. Mochel, 652

— and Modern Design, Research on, 80, 143*

— Strength of. See *Stress* and *Tests (Materials)*

— and Structures, Vol. II (Review), 356

Matériel Téléphonique, Equipment for Anglo-French Radio-Telephone Link, 761

Matter, Fine Structure of (Review), 209

Matthews, S., on Temperature-Measuring Instruments, 684

"Mauretania," Cunard White Star Liner, Launch of, 121*, 163, 168*. See *Addendum*, 218

Maw, Dr. W. H., Centenary of, 739

Maybury Chair of Highway Engineering, 276

Mayo, Major R. H., Design of Mayo Composite Aircraft, 137

Maze, Sir F., Presentation of Model Chinese Junks to Science Museum, 566

McArn, A., Everdur-Alloy Hot-Water Storage Tank, 160

McCance, Dr. A., on Developments in Iron and Steel Industry, 80

McCurdy, B. C., on Design and Construction of Suburban Roads, 664

McDougall, D., on Production of Active Carbon from Bituminous Coal, 408

McKeown, Dr. J., on Bursting of Water Pipes by Frost, 625

Measurement of Mechanical Power, Dr. C. V. Drysdale on, 69*

Measuring Machines, National Physical Laboratory Tests of, 266

Mechanical Engineers, American Society of, Discussion on New High-Temperature High-Pressure Stations, 451. See LETTER, 505; Investigations on Welding of Flame-Cut Surfaces, 521

Mechanical Engineers, Institution of:
- Register of Engineers for National Service, 395. See 250, 423, 479. See LETTERS, 457, 530
- Studentship and Associate-Membership Examinations, 570
- Format of *Proceedings*, 739

London Meetings, Winter Session:
- Long-Distance Transmission of Steam, by Prof. L. F. C. A. Genève, 279
- Measurement of Fineness of Powdered Materials, by Dr. H. Heywood, 492*
- Annual Dinner, 511
- Presidential Address, by D. E. Roberts, on Development of Iron and Steel Industry, 519. See 509
- Thomas Hawksley Lecture on Development of Television, by Sir N. Ashbridge, 565

Mechanical Engineers, Institution of—*continued.*
- Control of Diesel Railcars, with Special Reference to Transmissions, by Major W. G. Wilson, 630*. See 621
- Parsons Memorial Lecture, by S. S. Cook, on Sir Charles Parsons and Marine Propulsion, 680
- Measurement of Thickness of Metal Walls from One Surface only, by B. M. Thornton and Prof. W. M. Thornton, 715*
- First Report of Research Committee on High-Duty Cast Irons, by J. G. Pearce, 745*. See 742

North Western Branch:
- Annual Dinner, 680

Scottish Branch:
- Progress in Aircraft Design and Efficiency, by Dr. N. A. V. Piercy, 472

Mechanical Flight. See *Aeronautics*

— Lubricator. See *Lubricator*

— Power, Measurement of, 69*

— Stoker. See *Stoker*

— Traction on Roads. See *Roads; Motor Cars; Tractors*

Mechanics, Hero's Writings on, 542

— Quantum, Elements of (Review), 356

Mechans, Ltd., Stainless-Steel Ship's Motor Lifeboat, 154*

Medland, H. M., on Public Water-Supply Problems, 113

Meijnen, D. H., on Petroleum Fuels for Agriculture in Great Britain, 608

Melbourne University Engineering School, Rebuilding of, 223

Melchett Lecture on Destructive Distillation of Coal, 485. See 482

MeLeSco, Superheater for La Mont Boiler, 414*

Melville, Dundas & Whiston, Ltd., Apsley Railway Station, 402*

Mercantile Marine Engineers, Regulations for Examinations, 42, 309, 425

Mercedes-Benz Colonial-Model Motor Car, 512

Merchant Navy, Engineers' Examinations, 42, 309, 425; Defence Course, 47

— Shipbuilding. See *Shipbuilding*

— Ships. See *Ships; Steamers; Motorships*

Mercier, E., on Electrical Industry in France and other Countries, 109, 135, 201*

Mercury-Arc Rectifier Panels (British Thomson Houston Co., Ltd.), 210*

— Prices. See *Metal-Price Diagrams*

— Vapour Plant, Hartford Electric Light Co., 175

Merrett, Prof. W. H., the Late, 568

Merritt, Chapman & Scott Corporation, Piers for Balanced Cantilever Bridge over Connecticut River, 553*, 676

Merryweather & Sons, Ltd., 100-ft. Turntable Ladder for London Fire Brigade, 23*

Merz-Price 'Bus-Bar-Zone Protective System, 329*

Metals, Anti-Friction. See *Alloys* under *Metallurgy*

— Corrosion of. See *Corrosion*

— Fatigue of. See *Fatigue* and *Alternating Stress* under *Tests (Materials)*

— Filament Lamps. See *Lamps* under *Electric*

— Fracture of, National Physical Laboratory Investigations on, 62.

Metals, Institute of:

United States Meeting:
- Programme, 199
- Postponement of, 364

Autumn Meeting, London:
- Programme, 420
- Nomination of Officers, 566
- Constitution of Magnesium-Rich Alloys in the Systems Aluminium-Magnesium, Gallium-Magnesium, Indium-Magnesium and Thallium-Magnesium, by Dr. W. Hume-Rothery and G. V. Raynor, 567
- Factors Affecting the Liquidus, Solidus and Solid-Solubility Curves in Some Alloys of Magnesium, by Dr. W. Hume-Rothery and G. V. Raynor, 567
- Copper-Rich Nickel-Aluminium-Copper Alloys, Part II. Constitution of Copper-Nickel-Rich Alloys, by Dr. W. O. Alexander, 567
- Constitution of Aluminium-Zinc Alloys of High Purity: The Nature of the Thermal Change at 443 deg. C., by Dr. M. L. V. Gayler and E. G. Sutherland, 567
- Tarnishing of Silver and Silver Alloys, and its Prevention, by Dr. L. E. Price and Dr. G. J. Thomas, 567
- Oxidation-Resistance in Copper Alloys, by Dr. L. E. Price and Dr. G. J. Thomas, 567
- Some Characteristics of Copper-Aluminium Alloys made from Aluminium of Very High Purity, by Dr. M. L. V. Gayler, 568
- Study of Mechanical Properties of Tin-Rich Antimony-Tin Alloys, by Prof. D. Hanson and Dr. W. T. Pell-Walpole, 568

Metals, Non-Ferrous, British, Research Association, Annual Report and Lunch, 28; Report on "Nickel-Silver" Survey of Published Information, 259

— Price Diagram 58*, 158*, 300*, 436*, 543*, 686*, 758*

— and Rubber, Metalastik System of Bonding 391

— Structure of. See *Metallography; Microphotographs*

— Surfaces, Worn, Reconditioning by Oxy-Acetylene Welding (Société l'Air Liquide), 490

— Walls, Thickness of, Measurement from One Surface only, 715*

— Welding. See *Welding*

— Work, Practical Sheet and Plate (Review), 92

— See also *Metallography; Metallurgy; Microphotographs*

Metalastik, Ltd., Bonding of Metal and Rubber, 391*

Metallizing Co. of America, Inc., Sprayed-Zinc Coatings for Steel Surfaces, 657*

Metallography, Ferrous, Nomenclature in, 281

— See also *Metals; Metallurgy; Microphotographs*

Metallurgy:
- Alloy, Aluminium, High-Strength, Data on Castings, 12
- — — National Physical Laboratory Investigations on, 236
- — — Use for Motor-Lorry Body, 143*
- — — Zinc, Constitution of, 567
- — Antimony-Tin, Mechanical Properties of, 568
- — Copper-Steel for Castings, 548, 581
- — — Aluminium, Characteristics of, 568
- — — Oxidation-Resistance in, 567
- — — See also *Bronze; Gunmetal, &c.*
- — Die-Casting, Machines for, 293*, 411*
- — Iron, Magnetic Properties of, Investigations on, 326, 488*
- — — National Physical Laboratory, Investigations on, 198
- — Light, Use in Aircraft Construction, 538
- — Magnesium, Corrosion-Fatigue Tests, 63*
- — — Factors affecting Liquidus and Solidus Curves of, 567
- — — National Physical Laboratory Investigations in, 236
- — — Properties of, 170
- — — Rich, Constitution of, 567
- — Nickel-Aluminium-Copper, Effect of Heat Treatment on, 567
- — Nickel-Silver, Survey of Published Information on, 259
- — Silver, Prevention of Tarnishing of, 567
- — White-Metal, Cast on a Strip, Tensile Stress in, 235*, 295*. See LETTER, 299*. See 611*

Blast Furnaces. See *Furnaces*

Bronze. See *Bronze*

Cast Iron. See *Cast Iron*

Corrosion of Metals. *See Corrosion*

Everdur-Alloy Sheet for Water Tank, 160

Foundry. See *Foundry; Moulding*

Furnaces, Electric. See *Furnaces*

— Metallurgical. See *Furnaces*

Heat Treatment, Age-Hardening of Aluminium Alloys, Investigations on, 236
- — — Age-Hardening with Aluminium of High Purity, 568
- — — Bright Annealing Furnace, Hood-Type, 576*
- — — of High-Duty Cast Irons, 743, 746

Iron Manufacture. See *Furnaces, Blast*

Metals, Tests of. See *Tests (Materials)*

Metallurgical Department, National Physical Laboratory, Work of, 198, 236*

— Laboratories, Sir Robert Hadfield, Sheffield University, 362*

Perrin "Quick-Metallurgy" Process, Merits of, 540

Pyrometers. See *Pyrometers*

Refractories. See *Refractory Materials; Firebricks*

Rolling Mills. See *Rolling Mills*

Slags, Action on Refractories, 658
- — Foamed, Use for Concrete, 106

Steel Furnaces. See *Furnaces*
- — Manufacture by Thermoloys Progress, 110
- — Melting Practice, Acid Open-Hearth, 148
- — — Practice, Basic Open-Hearth, 24, 119
- — — Practice, Open-Hearth, Control in, 176
- — Non-Destructive Examination and Testing of, 141, 652

Thermoloys Process of Steelmaking, 110

Welding. See *Welding*

See also *Iron and Steel Institute; Metals, Institute of; Metallography; Microphotographs; Foundry;* and PARAGRAPH INDEX

Meteorological Balloons, Short-Wave Radio Transmitter for, 727

Meter, Air-Flow, Velometer (Metropolitan-Vickers Electrical Co., Ltd.), 625

— Flow, National Laboratory Investigations on, 196

— Positive-Displacement, for Motor Fuels (Tecalemit, Ltd.), 501*

— Sound, National Physical Laboratory Investigation on, 666

— Venturi, Federal Hydraulic Laboratory, Zürich, 4*

— Visibility, for Roads, 664

— See also *Electric*

Methane, Action on Refractories, 658

— Explosions. See *Accidents* and *Colliery*

— Production by Hydrogenation of Coke, 602

— Synthesis from Carbon Monoxide and Hydrogen, 603

Metrology Department, National Physical Laboratory, End-Gauge Comparator of High Sensitivity, 183*; Work of Department, 266*, 297

Metropolitan-Cammell Carriage & Wagon Co., Ltd., Railway Carriages for London Underground Railway, 51*

Metropolitan-Vickers Electrical Co., Ltd., Summer School for Engineering Teachers, 107; Tests of Materials for Vibration-Attenuating Supports, 124, 198*; Investigation on Relief of Internal Stress in Castings, 230*; Washing Machine for Electric Meter Parts, 544*. See *Erratum*, 589; Exhibits at Cardiff Engineering Exhibition, 625

— Water Board, Water-Examination Laboratories, 502*

— See also *London*

Meyer, W. A., Ltd., Portable Lead-Melting Furnace, 284

Mica, Röntgen-Ray Examination of, 624

— Thermal Conductivity of, National Physical Laboratory Investigations on, 595*, 624

Michels, A., on Measurement of Temperatures in High-Pressure Containers, 683

Microphotographs, Cracks in Bearing Metals, 295*

— with Electron Microscope, 475*

— of Galvanised Iron Wire, 27

— High-Duty Cast Irons, 746*

Microscope, Electron (Siemens und Halske), 474*

Microscope and Human Vision, 222
— Toolmakers' (C. Zeiss), 547*
Microstructure Diagram, Marine Clay, 404*
— of Metals. See *Metallography; Micro-photographs*
Middletown and Portland, Connecticut, Balanced-Cantilever Bridge between, 553*, 676
Mill, Law Vertical Hammer, for Grain, 26*
— Malt, Two-High (R. Boby, Ltd.), 330*
— Rolling. See *Rolling Mills*
— Tide, in Great Britain, 445*
Milling Machines and Cutters. See *Machine Tools*
Milne-Watson, Sir D., on Gas Industry, 110
Mines, Chief Inspector's Report on, 620
— Coal. See *Collieries*
— Department, Report on Use of Coal for Ship Propulsion, 165. See LETTER, 214
— Dump, "Scrapehauler" for Loading Rock from (Holman Bros., Ltd.), 255*
— Royal, History of, Society of, 81
— Safety in, Research Board, Annual Report, 718
— Secretary for, Annual Report, 620
— United States Bureau of. See *United States*
— Winding. See *Winding*
See also *Coal; Collieries; Mining; Winding;* and PARAGRAPH INDEX
Minerals, British Columbia, Production of, 195
— Industry, Canadian, in 1937, Report, 373
— Oils. See *Oils*
— Resources, United States, Conservation of, 403
—See also *Coal; Mining;* and PARAGRAPH INDEX
Mining, Copper, in Lake District, 81
— Developments in Yugoslavia, 685
— Industry in Queensland, Report, 768
— See also PARAGRAPH INDEX
Ministry of Transport. See *Transport*
Minneapolis-Moline Agricultural Tractor, 30-h.p., 681
Mirrlees, Bickerton & Day, Ltd., 360-b.h.p. Six-Cylinder Oil Engine, 515*; Positive-Action Pump, 515*
Mississippi River, Control Problems of, 580, 638, 754; Early Training Works on, 651
Missouri Valley Bridge & Iron Co., Piers for Blue Water International Bridge, 377*
Mitchell, D. R., on Smoke, Dust, and Air Pollution, 280
Mitchell Brothers, Son & Co., Ltd., Reconstruction of King's Cross Underground Station, 265*, 296*, 386*. See *Erratum*, 444,
Mixing Machines, Concrete. See *Concrete*
Mochel, N. L., on Non-Destructive Testing, 651
Model Aeroplane Shed, Wind-Pressure Tests on, 727
— Engineer Exhibition, 374
— Experiments, Federal Hydraulic Laboratory, Zürich, 3*, 149*
— — on River Training, 649
— — Spillways, Penstocks and Outlet Works at Boulder Dam, 15
— — Vienna Ship-Model Testing Tank, 575
— — See also *Aeronautics; Ship Resistance; Tank Experiments*
— Flying, of Flying Boat "Cams-Potez 161," 103
— Scale, Use in General Engineering, 243*, 252, 313*. See *Erratum*, 284
— Steel Construction for Air-Raid Shelters, 335, 420
Modjeski, Masters & Case, Blue Water International Bridge, 377*
Molasses as Road-Making Material, Experiments on, 231
Molecular Basis of Strength of Materials, 593
— Films, Production of, 710
Molybdenum in Cast Iron, Effect of, 746
Mond, Sir R. L., the Late, 530
Monometer Manufacturing Co., Ltd., Tilting Oil-Fired Furnace with Preheated Air, 262*
Monoplanes. See *Aeronautics*
Monsanto Chemical Company, Vanadium Catalyst for Sulphuric-Acid Manufacture, 518*
Monsarrat and Pratley, Thousand Islands Bridge System, 377*; Blue Water International Bridge, 377*
Montgomerie, Dr. J., on Trends in Shipbuilding, 84*
Montreal Harbour Developments, 69*
Montrose, Duke of, on Producer-Gas Propulsion, 654
Mooring Mast, Mobile, for Airship "Graf Zeppelin," 754*
"Moorland," H.M. Boom-Working Vessel, Launch of, 671
Mordey, W. M., the Late, 38
Morgan Rotary-Retort Low-Temperature Carbonisation Plant, Tests, 113*
Morgan Smith Co., Pressure Regulators for 115,000-h.p. Hydraulic Turbines, 669*
Morris Engine Works, Coventry, Selective Conveyor Installation, 25*
Mortimer, Dr. C. H., on Nitrogen, Bdlance of, in Large Bodies of Water, 691
Mortising Machines. See *Machine Tools*
Morton, E., on Protection of Underground Water Supplies, 625
Motion and Time Study (Review), 92
Motor Boat, 280-b.h.p., for H.M. Ships (J. I. Thornycroft & Co., Ltd.), 141*
— Launch, Lake, "Swan," 72
See also *Motor Lifeboat, Motor Tug*
— Car, American, Trends in Design, 700
— — Behaviour on Road Curves, 664
— — Colonial Model, Mercédès-Benz, 512

Motor-Car Details:

Detail Design in American Motor Cars, 700
Engines. See *Engines, Petrol, Motor Car*
Front-Wheel Drive and Four-Wheel Steering, Mercédès-Benz Colonial-Model Car, 512
Horns, National Physical Laboratory Investigations on Noise from, 667
Steering, Four-Wheel, Mercédès-Benz Colonial Model Car, 512
Trend of Design in, 481, 511
Transmission Gear, Salerni Hydro-Kinetic, 268*, 482
Wind-Screen Wipers, Improvements of, 482

Motor-Car Engines. See *Engines, Petrol*
— — Engineers. See *Automobile Engineers*
— — Exhibition, Earl's Court, 481, 511, 599*
— — Exhibition, New York National, 700
— — Fuels. See *Motor Fuels*
— — Investigations by Institution of Automobile Engineers, 107, 397
— — Mercédès-Benz, Colonial Model, 512
— — Pump with Pulsating Delivery for Washing (Lee Guinness Hydro-Pulsator Co., Ltd.), 288*
— — Railton, 2,500-b.h.p., Record Speed with, 281, 397
— — "Thunderbolt," Land Speed Record, 281, 397
— — Torque Converter for, 268*, 281, 482
— — Trend of Design of, 481, 511, 700
— — See also *Motor Cycles;* and PARAGRAPH INDEX
— Carriages, Railway. See *Carriages*
— Cycles, Silencers for, National Physical Laboratory Investigations on, 197, 667
— Electric, Air-Break Star-Delta Starter for (English Electric Co., Ltd.), 211*
— — in Coal Mines, 730
— — Corby Steel-Tube Plant, 469*
— — 27½-h.p., Flame-Proof (English Electric Co., Ltd.), 210*
— — 168-h.p., for London Underground Railway Carriages, 51
— — 130-h.p., Slip-Ring Induction (Bruce, Peebles & Co., Ltd.), 625
— — Squirrel-Cage, Low Starting-Current (Higgs Motors, Ltd.), 374*
— — Starters and Controllers for, Specification, 648
— — 5-h.p., 230-Volt, Steel Works (General Electric Co., Ltd.), 212*
— — 4,000-kW, Tower-Type Winding Plant, Fushun-Ryuho Colliery, Mukden, 671*
— — Traction, for 4,400-b.h.p. Diesel-Electric Locomotive, 101*
— — Traction, for 900-h.p. Diesel-Electric Locomotives (Laurence Scott & Electromotors, Ltd.), 48
— — 170-h.p. Traction (General Electric Co., Ltd.), 212*
— — Use in Mines, 367
— Exhibition, Earl's Court, 481, 511, 599*
— — New York National, 700
— Fuels, Positive-Displacement Meter for (Tecalemit, Ltd.), 501*
— — Production by Fischer-Tropsch Hydrogenation Process, 517
— — Production by I. G. Farbenindustrie Hydrogenation Process, 774
— — Wood and Charcoal as, 288
— Generators, Corby Steel-Tube Plant, 469*
— Hydraulic, for 14-ft. Butterfly Valves, Boulder Dam Power House, 239*
— Industry of Great Britain, 1938, Report, 337
— Internal-Combustion. See *Aeronautics; Engines; Motor Cars; Motor Boats; Tractors*
— Launch. See *Motor Boats*
— Lifeboat, Stainless-Steel, Ship's (Mechans, Ltd.), 154*
— Lorry with Air-Compressing Plant (Guy Motors, Ltd.), 583*
— — 5½-ton, with Aluminium-Alloy Body, 143*
— — Use of Producer Gas for, 654
— Manufacturers and Traders, Society of, Report on Motor Industry of Great Britain, 1938, 337
— Marine. See *Engines; Marine Propulsion; Motorships*
— Omnibus, Producer-Gas Driven, Operating Results, 654
— Paraffin. See *Engines, Petrol*
— Petrol. See *Aeronautics; Engines, Petrol; Motor Boats; Motor Cars; Tractors*
— Plough. See *Tractors*
— Road Rollers. See *Road Rollers*
— Spirit. See *Motor Fuel*
— Tractors See *Tractors*
— Transport and Road Construction, 380, 435*
— Truck, Industrial, 15-cwt. (James Cycle Co., Ltd.), 292*
— Tug "Harpen I," Gas Engines of, 537
— Vehicle, Air-Raid Precaution, with Trailer Pump (Scammell Lorries, Ltd.), 582*
— — Anthracite, Charcoal and Coke for, 299
— — Automatic Traffic Counting of, 613*
— — 3-ton, with Cattle Truck (Reo Motors, Ltd.), 32*
— — Gas Producers for, 737
— — Municipal, Garages for, 750
— — Municipal, Multi-Purpose (Ford Motor Co., Ltd.), 641*
— — Noise from, National Physical Laboratory Investigations on, 667
— — Skidding of, 435*
— — Speed Controller for (R. A. Rothermel, Ltd.), 127*
— — 115-h.p., with 100-ft. Turntable Ladder, London Fire Brigade, 23*
— — Use of Wood and Charcoal for, 288
— — Wheels, Impact on Roads, National Physical Laboratory Investigations, 151
— Wagons. See *Motor Lorries; Motor Vehicles; Tractors*
Motorship "Carnarvon Castle," Reconditioning of, 88*
— Classified, Lloyd's Register Report, 592
— under Construction, Lloyd's Statistics, 77, 453
— Cross-Channel, Design of, 598
— "Durban Castle," Description of, 744
— "Holzapfel I," Gas Engine of, 537
— Lost, Lloyd's Statistics, 132, 774
— Oil-Tank, Classified, Lloyd's Register Report, 592
— — Tank, Trends in Design and Construction, 84*
— "Oranje," 12,500-b.h.p. Sulzer-Diesel Engine, 418*
— "Ramb I" and "Ramb IV" for Banana Carrying, 216*
— "San Francisco," Wave Measurement aboard, 6
— Vibration of, 346*
— "Warwick Castle," Re-engining of, 428
— See also *Marine Propulsion*
Mott, Sir B., the Late, 331*
Moulds for Hume Concussional-Spun Concrete Pipes, 558*
Moulding Machine, Double-Face (British Insulated Cables, Ltd.), 212*
— — Wood. See *Machine Tools*
— Materials, Steel Castings Research Committee's Investigations on, 548, 581
— See also *Foundry*
Mount Pleasant Sorting Office, London Mechanical Equipment of, 353*, 437*, 523*, 635*, 698*
Mounting, Anti-Vibration, for Generating Set (Silentbloc, Ltd.), 185
— for Diesel Engine, Model Tests of, 315
Mowing Machine, Gang, with Pneumatic Tyres (Lloyds & Co. (Letchworth), Ltd.), 644*
— — Gang, Tractor-Drawn (H. Pattieson & Co., Ltd.), 584*
— — 2-h.p. Petrol-Driven (A. C. Bamlett, Ltd.), 32*
— — Lawn, 28-in. Petrol-Driven (C. H. Pugh, Ltd.), 643*
— — 36-in. Petrol-Driven, with Trailer Seat (A. Shanks & Son, Ltd.), 584*
Moyes, S. J. E., on Deflection of Turbine Rotors, 181*
Muffle Furnace, Gas-Fired (Selas Gas & Engineering Co., Ltd.), 213*
Muir, Prof. J., Experiments on Flip in Rifles, 45
Mukden, Manchoukuo, Tower-Type Winding Plant, Fushun-Ryuho Colliery, 671*
Multitubular Boilers. See *Boilers*
Municipal Cleansing and Transport Vehicles, Garages for, 750
— and Industrial Planning, 109, 110
Museum, Hull, Model of Priestman Oil Engine, 598
— Science, South Kensington, Cyclotron and Cyclotron Models, 309; Chinese Junks at, 566; Science in the Army Exhibition, 621
Mylius Gearbox for Diesel Railcar, 622, 631

N.

"NANTASKET," S.S., Fire Tests on, 116
National Association of Supervising Electricians. See *Supervising Electrical Engineers, Association of*
— Coal Convention. See *Coal Convention, National*
National Fertilizers, Ltd., Double-Acting Dry Vacuum Pumps, 303*
— Physical Laboratory, Report on Work of 18, 62*, 107*, 151*, 196*, 236*, 266*, 297*, 338*, 370, 440*, 526*, 550*, 593*, 623*, 666*, 711* 725; Experiments on Friction of Oscillating Bearing, 170; Metrology Department, End-Gauge Comparator of High Sensitivity, 183*; Work with Association of Short-Circuit Testing Authorities, 511; Model Tests of Steam Drifters, 599*, 662*; Tests on High-Duty Cast Irons, 742, 745*
— "Safety First" Association, Travelling Scholarship Essay, 570
— Service, Register of Engineers for, 395. See 250, 423. See LETTERS, 457, 479, 530
Naval Aeronautics. See *Aeronautics*

Naval Architects, Institution of:

Martell Scholarship, 570
Award of Scholarships, 677

Naval Architects and Marine Engineers, International Conference of, London:

Reports of Discussions, 6
Experimental Methods to Determine the Strength of Materials in Relation to Shipbuilding, by R. De Leiris, 6
Whirl of Diesel-Engine Crankshafts, by G. J. Lugt and N. J. Visser, 21*. See 6
Ocean Waves, Freeboard, and Strength of Ships, by Prof. G. Schnadel, 6
Some Contributions to the Theory of Rolling, by Prof. Y. Watanabe, 6
Trends in Shipbuilding, by Dr. J. Montgomerie, 84*
Effect of New Safety Regulations in Senate Report No. 184 on Design of Merchant Ships, by Commdr. H. L. Vickery, W. G. Esmond, J. E. Schmeltzer and S. B. Crosby, 116
See also vol. cxlv
Naval Architects and Marine Engineers, Society of, Essential Elements of Naval Research, by Dr. R. Gunn, 141; Non-Destructive Examination of Steel, by Dr. R. H. Canfield, 141
— Architecture, Design of Atlantic Liners, 163
— — Water-Tight Subdivision of Ships. See *Water-Tight*
— — See also *Warships*
— Construction. See also *Warships*
— Engineers, American Society of, Jubilee Meeting of, 738
— Engineering in United States, History of, 738
— Research, Essential Elements in, 141
— See also *Warships*
Navigating Equipment, Drag-Suction Dredger "Fu-Shing," 496
Navigation, Aerial. See *Telegraphy, Wireless*
— Equipment, S.S. "Queen Elizabeth," 384
Navvy. See *Excavator*
Navy, British. See *H.M.* under *Warships*
— Italian. See *Italian* under *Warships*
— United States. See *United States* under *Warships*
— See also *Naval; Warships;* and PARAGRAPH INDEX
Neill, J., & Co. (Sheffield), Ltd., Manufacture of Hacksaw Frames and Magnetic Chucks, 332*
Nelson, R., on Electricity in Coal Mines, 730
Neon-Tube Radium Detector, 624*
Nests of Tubes, Resistance of Flow Through, 605*, 665*, 723*
Neutraliser, Vibration, for Ships, 347*
New England, Rainfall and Run-off in, 54
— South Wales, Direct Road Construction by Heat Treatment of Soils, 39*
— York National Automobile Show, 700
— — Pearl Street Power Station, 173
— Zealand Government Railways, Annual Report, 425
Newalls Insulation Co., Ltd., Experiments on Noise Reduction in Ships, 766
Newcastle-upon-Tyne Railway Junction, Relaying of, 584*
Newcomen Society, Summer Meeting in Lake District, 81; Society for Mines Royal and German Colony in Lake District, by R. Jenkins, 81; Ironfounding in England, 1490–1890, Part I, by R. Jenkins, 632; The South Yorkshire Iron Industry, 760.
Newlands, A., the Late, 272
Newman, Hender & Co., Ltd., Glandless Lubricated Parallel-Plug Valve, 155; Controlled-Ball Bowler Stop Valve, 155*
Newton, Chambers & Co., Ltd., Four-Lift Spiral-Guided Gasholder, 323*, 357*
Nickel in Cast Iron, Effect of, 746
— Iron, Magnetic Properties of, Investigations on, 326, 489*
— Production in Canada, 1937, 373
— Silver, Survey of Published Information, 250
Nile, River, Hydro-Electric Developments on, 453
Nitrogen, Balance of, in Large Bodies of Water, 691
Noise, Investigations at National Physical Laboratory, 666
— Reduction in Ships, Experiments on, 766
— Structure-Borne, Reduction by Vibration-Attenuating Supports, 124, 198*
— Suppression in Buildings, Exhibits at Building Trades Exhibition, 529
— from Transformers, Investigations on, 521*
Nomenclature in Ferrous Metallography, 281
Nomogram Method of Humidity Control, 57*
Non-Conducting Coverings. See *Heat Insulation*
— Ferrous Metals. See *Metals; Metallurgy*
"Normandie," S.S., Vibration in, 347*
North-East Coast Institution of Engineers and Shipbuilders, Rear-Admiral G. H. Rock, U.S.N., made Honorary Fellow, 17; Presidential Address, by Major T. R. Cairns, on Shipping and Trade, 511; Andrew Laing Lecture on Molecular Basis of Strength of Materials, by Sir W. Bragg, 593; Symposium on Propellers, 619
North Metropolitan Electric Power Supply Co., Driving Tests of Copper Earthing Electrodes, 456
— Notes from, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 398, 421, 449, 477, 507, 535, 561, 589, 616, 647, 677, 705, 735, 763. See PARAGRAPH INDEX
Northampton Polytechnic, London, Prospectuses, 275; Investigations on Incremental Magnetic Measurements, 406*, 573*; Lectures on Electro-Deposition, 706
Northern Countries in World Economy (Review), 92
Norwich Engineering Society, Annual Supper, 735
Notch Effect and Machine Design, 143
Notched-Bar Tests. See *Tests (Materials)*
Notes on New Books. See *Books* and LITERATURE INDEX
— See *Cleveland; North; South-West; South Yorkshire; Labour.* See also PARAGRAPH INDEX
Nozzle, Air-Metering, National Physical Laboratory Investigation on, 196
Nuttall, E., & Co. (London), Ltd., Reconstruction of King's Cross Underground Station, 265*. See *Erratum*, 444
Nuttall, G. R. F., on Shelters and Buildings for Air-Raid Protection, 572

O.

OAKLEY Junction Railway Accident, Report, 214
Obert, C. W., on Welding of Flame-Cut Surfaces, 521

Obituary:

Barclay, W. R., 401
Barford, V. G., 426
Bellias, J., 613
Berthier, C., 427
Blake, E. H., 132
Booth, H., 187
Bown, C. H., 219
Brackenbury, H. I., 427
Brown, Prof. E. W., 160
Callender, Sir T. O., 675
Carpenter, Dr. C. C., 331
Dawson, Sir P., 401*
Delany, S., 506
Eendenburg, D. C. F. van, 455
Evans, E., 312
Fowler, Sir H., 484*
Griffith, Sir J. P., 512*
Hay, D., 568
Herreshoff, Capt. N. G., 98
Hill, E. L., 530
Hörnell, Prof. P. G., 570
Humby, H. G., 426
Humphries, Sir H., 38
Hutchinson, A., 256
Kent, Sir W. G., 598
Klement, V., 389
Levenger, M., 735
Lynde, G. G., 187
Marks, Lord, 400
Merrett, Prof. W. H., 568
Mond, Sir R. L., 530
Mordey, W. M., 38
Mott, Sir B., 331*
Newlands, A., 272
Price, T. L., 559
Pringle, Col. Sir J. W., 98
Sakiatvala, Sir N. B., 134
Scott, W. H., 332
Snell, Sir J., 79*
Thury, Dr. R., 225
Tochon, G., 645
Ward, W. A., 598
Whitehouse, Sir G., 645
O'Brien, M. P., on Transportation of Sand in Pipe Lines, 158
"Ocean Rambler," Steam Drifter, Tank and Sea Tests, 599*, 662*

"Ocean Reward," Steam Drifter, Tank and Sea Tests, 599*, 662*
"Ocean Vim," Steam Drifter, Tank and Sea Tests, 599*, 662*
Ockenfels, F. H., "Procedo" Rotating Lathe Centres, 508
Oedometer for Testing of Clay, 405*
Oemichen Automatic Continuous Calliper Gauge, 115*
Oil in Britain, Search for, 593
— Burning Equipment, Fully Automatic, Specification, 305
— — Equipment, S.S. "Mauretania," 122
— Diesel, Use in British Agriculture, 608
— Emulsion for Cutting Tools, 546. See *Erratum*, 580
— Engines. See *Engines, Oil; Motor Cars; Motor Boats; Tractors*
— Fuel Burner, "Hydra" (Hydran Products, Ltd.), 443*
— — Burning in American Locomotives, 136
— Lubricating, Four-Ball Top Testing-Apparatus for, 107
— — Production by Fischer-Tropsch Hydrogenation Process, 517
— — Production by I.G. Farbenindustrie Hydrogenation Process, 774
— Motors. See *Engines, Oil; Motor Cars; Motor Boats; Tractors*
— Production from Coal, 1937, 620
— — from Coal in Germany, 517, 775
— — from Oil-Shale and Cannel Coal, 46, 106
— Pump, Laurel High-Pressure Mechanical, 777*
— Shale and Cannel Coal, Conference on, 46,106
— Switches. See *Switchgear*
— Tankers Classified, Lloyd's Register Report, 592
— — Trends in Design and Construction, 84*
— Tractors. See *Tractors*
— See also *Lubrication; Petroleum*
Old Centralians, Symposium on Engineers in the Modern World, 538
Olding, J., & Co., Ltd., 8½-h.p. Lightweight Agricultural Tractor, 681, 732*
Oliet, A., 12-h.p. Diesel Agricultural Tractor for Vine Cultivation, 26
Oliver Rowcrop Agricultural Tractor, 681
Olympia. See *Exhibition*
Omnibus, Motor. See *Motor Omnibus*
— Trolley. See *Trolley-Bus*
Ontario Hydro-Electric Plant, Rehabilitation after Damage by Ice, 203
— — Electric Power Commission, Annual Report, 164
— Report on Limestone Deposits, 305
Open-Hearth Furnace. See *Furnace*
Optical Investigations at National Physical Laboratory, 669
Optics, Hero's Writings on, 542
— and Human Vision, 221
— Science of Seeing (Review), 640
Oranje Line, Transatlantic Shipping Service, 539
— M.S., 12,500-b.h.p., Sulzer-Diesel Engine,18*
Orrok, G. A., on Development of Central Stations, 173*. See 109, 135, 452
Oscillations, Electric. See *Electric*
Oscillograph. See *Electric*
Oscilloscope for Determining Airscrew Vibration, 288*
Oued Beht River and Weir, Model of, 149*
Overhead Lines, Power Transmission, Electricity Commissioners' Report, 510
— — Power Transmission in France and England, 136, 201
— — Power Transmission, Ontario, Annual Report, 164
— — Power Transmission, National Physical Laboratory Investigations on, 712
— — Power-Transmission, in Sweden, Licence Acts for, 767
Overseas Trade and British Shipping, 679
— — Department, Reports on Economic and Commercial Conditions in Iran, 156; in Iraq, 250; in Syria and the Lebanon, 604
— — of United Kingdom, 1937, Nationality of Carrying Ships, 679
Oxford Conference, Association of Special Libraries and Information Bureaux. See *Libraries, Special, and Information Bureaux, Association of*
— — International Federation for Documentation, 50, 389, 707. See LETTER, 458
Oxidation-Resistance in Copper Alloys, 567
— — in Silver Alloys, 567
Oxlade, Capt., H. J. W. on International Crisis and Engineers, 457. See 250, 395, 423, 479. See LETTER, 530
Oxy-Acetylene Welding. See *Welding*
Oxygen, Gasification of Pulverised Coal with, under Pressure, 603
— in Steel, Vacuum-Fusion Method of Determination, 238*

P.

pH Measuring Instruments, Developments in, 319*
P.K. Variable-Speed Friction Drive, 729*
Packet Sorting Office, Mount Pleasant, London, Mechanical Equipment at, 353*, 437*, 523*, 635*, 698*
Paint, Coal Tar, for Iron and Steel Work, 276
— Moisture-Resisting Properties of, Tests of, 310
Painter Brothers, Ltd., Callender-Hamilton Unit-Construction Footbridge, 342*; Callender-Hamilton Unit-Construction Aeroplane Shed, 727*
Paladin Refuse Collector, 642*
Palmer, A. E., on Bacteriological and Chemical Control of Public Water Supply, 54
Palmer, S. J., on Stresses in Welded Pipes, 289*. See 310
Panel, Sheet-Metal, National Physical Laboratory Investigations on, 151
Panelling, Fire-Protection, Steel and Asbestos (Durasteel Roofs, Ltd.), 529
Paper, Filter, National Physical Laboratory Investigations on, 238
Paraffin Engines. See *Engines, Petrol*
— Tractors. See *Tractors*
Parcels Sorting Office, Mount Pleasant, London, Mechanical Equipment at, 353*, 437*, 523*, 635*, 698*
Paris Agricultural Machinery Exhibition, 26*
— Electricity Supply, Combined Operation of Steam and Hydraulic Stations for, 350*, 431*
Park Gate Iron & Steel Co., Ltd., Hot-Metal Practice in Fixed Furnaces, 24
Parker, J. W., Blast-Furnace Gas-Fired Boilers, Delray Power Station, 207*
Parkin, M., on Measurement of Temperature in Glass Furnaces, 684
Parodi, H., on Electrification of French Railways, 755
Parsons Engineering Co., Ltd., 10–12 h.p., Petrol-Driven Generating Set with Standby Engine, 129*; 30–50 b.h.p. Marine Petrol Engine, 341*
— Memorial Lecture on Sir Charles Parsons and Marine Propulsion, 680
— Turbines. See *Turbines, Steam; Marine Propulsion*
Partitions, Sound-Proof, Investigations on, 668
Parton, J. E., on Harmonic Power in Iron Testing, 431*. See 326; on Magnetic Testing of Rings and Small Transformer Cores, 573*
Passenger Aeroplane. See *Aeroplane* under *Aeronautics*
— Steamers. See *Steamers*
— Traffic, London Passenger Transport Board's Report, 564
Patent Agents, Chartered Institute of, Presidential Address, by W. H. Ballantyne, on the International Conventions Relating to Industrial Property, 715
— Designs and Trade Marks (Review), 455
— Industrial Conventions Relating to, 715
— Record, 90*, 178*, 234*, 322*, 410*, 634*, 722*, 778*
— See also *Trade Marks*
Pattern-Making Machines. See *Machine Tools*
Pattisson, H., & Co., Ltd., Tractor and Gang Mower, 584*
Pavements, Brick, in United States, Developments in, 233
Peace, J., & Sons, Ltd., Hand-Cut File, 626
Pearce, J. G., on High-Duty Cast Irons, 742, 745*
Pearl Street Power Station, New York, 173
Pearson, T. F., on Nickel-Silver, Survey of Published Information, 259
Pell-Walpole, Dr. W. T., on Tin-Rich Antimony-Tin Alloys, 568
Pembroke Tide Mill, 447*
Pencils, African Cedar for, Report, 292
Peninsular & Oriental Steam Navigation Co., Ltd., S.S. "Canton," 458*
Penstocks, Boulder Dam, Model Experiments on, 15
— Welded Pipes for, Investigations on, 289
Pepler, G. L., on Town and Country Planning in Relation to Industry, 110
Perfecta Gas Thermostats, Ltd., Gas-Fired Air Heater, 513*
Periodicals, Scientific and Technical, Evaluation of, 707
Perkin, Sir W. H., Centenary of, 650
Permanent Way, Newcastle-upon-Tyne Junction, Re-laying of, 584*
— — Trent Valley Junction, Reconstruction, 225*
Permeability, Incremental, Instruments for Measurement of, 326, 348*
Perrin Steel Process, Merits of, 540
Personal 12, 42, 72, 102, 132, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 560, 588, 616, 646, 676, 704, 734, 762
Peter, Prof. M., Hydraulic Laboratory, Federal Institute of Technology, 3*, 149*
Petrol Jet, National Physical Laboratory Investigations on, 198
— Motors. See *Aeronautics; Engines, Petrol; Motor Cars; Motor Boats; Tractors*
— Tractors. See *Tractors*
— Use in British Agriculture, 608
Petroleum, Institute of, Conference on Oil-Shale and Cannel Coal, 46, 106; Cutting Fluids and Machine Tools, by A. H. Lloyd and H. H. Beeny, 546. See *Erratum*, 580; Conversazione, 593; Search for Oil in Britain, by G. W. Lepper, 593; Functions of Cutting Fluids, by Prof. H. W. Swift, 659*; Annual Dinner, 711
— Science of (Review), 283, 769
— See also *Oil; Paraffin; Engines, Oil*
Petters, Ltd., 125-b.h.p. and 250-b.h.p. Two-Stroke Supercavenge Diesel Engines, 10*; 1½–3 b.h.p. Single-Cylinder Petrol-Paraffin Engine, 30*; Four-Cylinder, 160-b.h.p. Atomic Diesel Engine for M.S. "Research," 226; 125-b.h.p. Two-Cylinder "Supercavenge" Oil Engine, 597*
Phenols, Production of Aromatic Hydrocarbons from, 464
Philip & Son, Ltd., Royal Research M.S. "Research," 226
Philipp, P., Universal Level, 348
Philippe, C. D., on Reinforcement of Wood with Synthetic Resin, 655
Philips Industrial (Philips Lamps, Ltd.), Philips-Suschyzki Magnetic-Examination Apparatus, 626; Spot-Light for Welding Work, 761
Philplug Products, Ltd., Plastic Asbestos for Machine Anchorage, 348*
Photo-Electric Apparatus, National Physical Laboratory Investigations on, 725
— — Methods of Fineness Measurement of Powdered Materials, 494
Photography, Commercial and Industrial, Exhibition of, 368
Photometric Investigations at National Physical Laboratory, 725
Photomicrographs. See *Microphotographs*
Physical Laboratory. See *National Physical*
Physics, Combination Tones in Sound and Light, 593
— Cyclotron and Cyclotron Models, Exhibition of, 309
— Department, National Physical Laboratory, Work of, 553 594*, 623*, 666*
Physics, Electron Microscope (Siemens & Halske), 474*
— Ionisation Chamber, Air-Wall, 623*
— Matter, Fine Structure of (Review), 209
— Molecular Basis of Strength of Materials, 593
— — Films, Production of, 710
— Temperature and Pressure of Mixed Saturated Steam and Air, 674*
— Vision in Nature and aided by Science, 221
— See also PARAGRAPH INDEX
Pier, Alexandra, Montreal Harbour, 69*
— Balanced-Cantilever Bridge over Connecticut River, 553*, 676
— for Blue Water International Bridge, 378*
— Ferro-Concrete, Waterloo-Bridge Reconstruction, 587*
Pier, M., on I. G. Farbenindustrie High-Pressure Hydrogenation Process, 774
Piercy, Dr. N. A. V., Progress in Aircraft Design and Efficiency, 472
Pig-Iron for Acid Open-Hearth Steel Melting, 148
— — for Fixed Basic Open-Hearth Furnaces, 120
— — Prices. See *Metal-Price Diagrams*
Pigman G. L., on Vibrograph for Fresh Concrete, 232*
Piles, Reinforced-Concrete, Stresses in during Driving, 87
Pilgrim Trust Lecture on Molecular Films, 710
Piling, Concrete, Reinforced (Review), 455
— Steel Sheet, Hoesch, for Cofferdam, Waterloo Bridge, 588*
Pinions. See *Gears; Gearing; Marine Propulsion*
Pipes, Cast-Iron, Specification, 393
— Concrete, Hume Concussional-Spun (J. Ellis & Sons, Ltd.), 557*
— Gas, Wrought Iron, Specification for, 718
— Line, Blast-Furnace Gas, Delray Power Station, 207*
— — Sand Transportation in, Report, 158
— — Steam, Treforest Trading Estate, South Wales, 97
— — Welded Steel, Self-Supporting Horizontal Span, 465*
— Sludge, Cast-Iron, Failure of, 148
— Steam. See *Steam Pipes*
— Suction, Drag-Suction Dredger "Fu-Shing," 577*
— Water, Bursting by Frost, 625
— — Sound Insulation along, Investigation on, 667*
— Welded, with Internal Pressure and End Thrust, Stresses in, 289*, 310
— See also *Tubes*
Pirani, M., on Gas-Temperature Measurement, 683
Pirie, H. I., on Domestic Solid Fuels, 682
Piston for Junkers Heavy-Oil Engine, 316*
Planing Machine. See *Machine Tools*
Planning, Industrial and Municipal, 109, 110
— — Problems of, 566
Plastic Asbestos for Machine Anchorage (Philplug Products, Ltd.), 348*
Plastics, Double-Crank Moulding Press for, 274*
— See also *Resins*
Plate, Boiler, Intercrystalline Cracking of, Investigations on, 237
— Shearing Machine. See *Machine Tools*
— and Sheet Metal Work, Practical (Review), 92
— Steel, Electro-Magnetic Testing of, 141, 652
— — Prices. See *Metal-Price Diagrams*
— Taper-Bore, Strength of, 171*
Plating, Electro. See *Electro*
— Ship, National Physical Laboratory Investigations on, 152*
Platt Brothers & Co., Ltd., Dry Multiple-Disc Clutch, 115*
Platte, River, Colorado, Self-Supporting Horizontal Pipe-line across, 465*
Plough, Motor. See *Tractor*
Plywood, Durisol Special, 306
Pneumatic Tools. See *Machine Tools*
— Tyres, Behaviour on Roads, 592
— — Developments in, 563
— See also *Air Compressor*
Poisson's Equation, Relaxation Method for Solution of, 251
Polak Die-Casting Machines, 411*
Pollution, Atmospheric, Failure of Transformer owing to, 597
— — Ministry of Health Report, 222
— — Report on Alkali Works, etc., 138
— — and Smoke Abatement, 280
— — by Sulphur, Prevention of, 499
— River, and Sewage Disposal, 749
— of Water Supply, Prevention of, 114
Polytechnic. See *Education*
Pontoon with Revolving Crane, Montreal Harbour Developments, 69*
Poplar Borough Council, Collecting Vehicle with Compression Gear, 642*
Port of London, Annual Report, 251
— of Montreal, Developments, 69*
— of Rangoon, Annual Report, 767
Portable Engine. See *Engine*
— Machine Tools. See *Machine Tools*
Portland Cement. See *Cement*
— and Middletown, Connecticut, Balanced-Cantilever Bridge between, 553*, 676
Post Office, Mount Pleasant Sorting Office, Mechanical Equipment at, 353*, 437*, 523*, 635*, 698*
— — Research Station, Investigations on Corrosion of Galvanised Iron Wire, 27, 54*
Potato-Sorting Table, Hand-Operated (Cooch & Son), 94*
Potentiometer. See *Electric*
Powder Dusting Apparatus, Agricultural (Etablissement Vermorel), 26*
Powdered Coal. See *Pulverised Coal*
— Materials, Fineness of, Measurement of, 492*
Power Conference, World. See *World Power Conference*
— Hammer. See *Hammer* under *Machine Tools*
— Harmonic, in Iron Testing, 326, 431*
— Mechanical, Measurement of, 69*
— Plant, Hydro-Electric, Boulder Dam, 59*, 179*, 239*, 549*, 608*, 669*, 693*
— — Hydro-Electric, French, 136, 201*
— — Hydro-Electric, Massif-Central, France, and Paris Electricity Supply, 350*, 431*
Power Plant, Hydro-Electric, Model Experiments, Federal Hydraulic Laboratory, Zürich, 3*, 149*
— — Hydro-Electric, Ontario, Annual Report, 164
— — Hydro-Electric, Ontario, Rehabilitation after Damage by Ice, 203
— — Hydro-Electric, Peak-Load, Deichow, Germany, 36*
— — Hydro-Electric, on Rhine-Main-Danube Canal, 119*
— — Hydro-Electric, on River Nile, 453
— — Hydro-Electric, in Sweden, 767
— — See also *Power Stations; Power Water; Substations*
— Press. See *Machine Tools*
— for Ship Propulsion. See *Marine Propulsion; Ship Resistance*
— Station, Delray, Detroit, Blast-Furnace Gas-Fired Boilers, 207*
— — Diagram Control Board for (A. Reyrolle & Co., Ltd.), 328*
— — Electric, American, High Pressures and Temperatures in, 451. See LETTER, 505
— — Electric, Battersea, Flue-Gas Washing at, 499
— — Electric, Clarence Dock, Liverpool, Extensions to, 483
— — Electric, Coal-Fired, Design of, 690
— — Electric, in Egypt, 453
— — Electric, for Electric Railways, 709
— — Electric, Electricity Commissioners' Report, 510
— — Electric, Fulham, Flue-Gas Washing at, 499
— — Electric, in France, 130, 201*
— — Electric, Hartford, Mercury-Vapour Plant, 175
— — Electric, Hams Hall, Birmingham, 48, 77; Report of Failure at, 597
— — Electric, History of Developments in, 173*, 452
— — Electric, Kingston-on-Thames, Fire at, 739
— — Electric, Paris, Combined Operation with Hydraulic Stations, 350*, 431*
— — Electric, South Africa, Report, 139
— — Electric, Steam Distribution from, 279
— — Electric, Stourport, 48, 78
— — Electric, Technical and Economic Developments in, 80, 136
— — Electric, "Topping Plant" for, 135, 174, 451
— — Electric, United States, Thermal Efficiency of, 173, 452
— — See also *Power Plants; Substations*
— Supply, Electric, Aberdeen Broadcasting Station, 332
— — Electric, in Agricultural Development (Review), 640
— — Electric, Birmingham, 48, 77
— — Electric, Birmingham, Report on Failure of, 597
— — Electric, for British Agriculture, 498, 607
— — Electric, in Coal Mines, 730
— — Electric, Corby Steel-Tube Plant, 469
— — Electric, Costs and Tariffs (Review), 640
— — Electric, in Egypt, 453
— — Electric, for Electric Railways, 709
— — Electric, Electricity Commissioners' Report, 510
— — Electric, in France, 136, 201*
— — Electric, for French Agriculture, 499, 608
— — Electric, for French Railways, 755
— — Electric, for German Railways, 755
— — Electric, in Germany, 653
— — Electric, in India and Burma, Law Relating to (Review), 167
— — Electric, for Irrigation Pumping, India, 768*
— — Electric, Kingston-on-Thames, Failure of, 739
— — Electric, Ontario, Annual Report, 164
— — Electric, Paris, Combined Operation of Steam and Hydraulic Stations for, 350*, 431*
— — Electric, for Small Commercial Market, 653
— — Electric, South Africa, Report, 139
— — Electric, Southern Railway Portsmouth-Horsham Line, 29
— — Electric, Standardisation in, 621
— — Electric, for Street Lighting, 709
— — Electric, in Sweden, 767
— — Electric, Sydney, 133
— — Electric, Technical and Economic Developments in, 80
— — Electric, Use in Mines, 367
— — Electric, World Production and Utilisation, 109, 201*
— — for French Agriculture, 499, 607
— — Water, Model Plant, Federal Hydraulic Laboratory, Zürich, 3*, 149*
— — in Sweden, Problems of, 767
— — See also *Hydraulic; Power Plants, Hydro-Electric; Turbines, Hydraulic*
— Transmission, Overhead Lines, Electricity Commissioners' Report, 510
— — Overhead Lines, in France and England, 136, 201
— — Overhead Lines, National Physical Laboratory Investigations on, 712
— — Overhead Lines, Ontario, Annual Report, 164
— — Overhead Lines, in Sweden, Licence Acts for, 767
— — See also *Gearing; Marine Propulsion*
— Transmitter, Salerni Hydro-Kinetic, 268*, 482
Pratt, Dr. D. D., on Corrosion of Coal-Tar Stills, 333, 396
Préaud, P., on Power Supply for Agriculture in France, 607
Precipitator, Cottrell Electrostatic, for Blast-Furnace Gas, Delray Power Station, 207*
Precision Castings Co., Inc., Die-Casting Machine, 411*
Preservation of Countryside, Report on, 396
Presidential Address to Association of Supervising Electrical Engineers, by J. R. Beard, on Design of Coal-Fired Power Stations, 690
— — to British Association, by Lord Rayleigh, on Vision in Nature and Vision aided by Science, 221. See 251

Presidential Address to British Association, Engineering Section, by Prof. H. V. Southwell, on Changing Outlook of Engineering Science, 260. See 249, 251. See LETTERS, 299, 530
— — to British Coal Utilisation Research Association, by Sir E. Williams, on Work of Association, 740
— — to British Engineers' Association, by Lieut.-Col. Lord Dudley Gordon, on Engineering Industrial Organisation, 483
— — to British Waterworks Association, by H. M. Medland, on Public Water-Supply Problems, 113
— — to Chartered Institute of Patent Agents, by W. H. Ballantyne, on the International Conventions Relating to Industrial Property, 715
— — to Institute of Fuel, by Lieut.-Col. J. H. M. Greenly, on Fuel Problems, 482
— — to Institute of Marine Engineers, by Sir J. Foley, on the State and the Marine Engineer, 425
— — to Institute of Transport, by G. S. Szlumper, on Transport, Comfort and Speed, 480
— — to Institution of Automobile Engineers, by P. C. Kidner, on Motor-Car Development, 481
— — to Institution of Engineers and Shipbuilders in Scotland, by A. C. Gardner, on International Engineering Congress, 453
— — to Institution of Mechanical Engineers, by D. E. Roberts, on Development of Iron and Steel Industry, 519. See 509
— — to Institution of Water Engineers, by J. F. Haseldine, on Public Water Supply Problems, 53
— — to International Engineering Congress, by Lord Weir, on Engineers and Modern Civilisation, 33
— — to Junior Institution of Engineers, by Sir C. Bressey, on Roads and Traffic, 710
— — to North-East Coast Institution of Engineers and Shipbuilders, by Major T. R. Cairns, on Shipping and Trade, 511
Press, Fliter, Hydraulic (S. H. Johnson & Co., Ltd.), 627*
— — Screw (S. Briggs & Co., Ltd.), 687*
— See also *Machine Tools*
Pressure Losses in Air Ducts, Investigation of, 302
— Recorder for Rolling Mill (Cambridge Instrument Co., Ltd.), 320*
— Regulator for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 669*
Price, Dr. L. E., on Tarnishing of Silver, 567; on Oxidation-Resistance in Copper Alloys, 567
Price, T. L., the Late, 559
— of Metals. See *Metal-Price Diagrams*
Priest Furnaces, Ltd., Furnace for Heavy Weldless-Steel Tube Plant, 713
Priestman Brothers, Ltd., Model of Oil Engine of 1887, 598
Primary Battery. See *Cell* under *Electric*
Prime Electrically-Charged Fence, 66
Pringle, Col. Sir J. W., the Late, 98
Procedo Rotating Lathe Centre, 508
Producer-Gas Engine. See *Engines, Gas*
— — for Fixed Basic Open-Hearth Furnaces, 120
— — for Motor Vehicles, 654, 737
— — Temperature, Measurement of, 684
Professional Men and National Emergency, 250. See 395, 423. See LETTERS, 457, 479, 530
— Photographers' Association Exhibition, 368
Profiling Machine. See *Machine Tools*
Progress Industries, Ltd., High-Pressure Mechanical Oil Pump, 777*
Prop, Steel Safety, for Mines (W. Sylvester, Ltd.), 625
Propane Gas, Use for Railway Signals, 709
Propellers, Aerial. See *Aeronautics*
— Marine, Model Tests in Vienna Tank, 575
— — S.S. "Queen Elizabeth," 383*
— — Science of Design of, Sympoeium on, 619
— — Ship Vibration from, 346*, 283, 377
— — for Steam Drifters, Model Tests of, 599*, 662
— Model Experiments at National Physical Laboratory, 338, 370
— Shaft Brackets, Strength of,, 695*
Propulsion of Ships. See *Marine Propulsion: Engines; Turbines; Propellers; Ship Resistance*
Prozesky, R., "Procedo" Rotating Lathe Centres, 508
Prym, W., "P.K." Variable-Speed Friction Drive, 729*
Public Cleansing, Ministry of Health Report, 222
— Health, Engineer's Contribution to, 692
— — Exhibition, 581*, 641*
— — Gas in Service of, 750
— — Service: Congress, London: The Relay System of Refuse Collection, by H. Cook, 624; Air-Raid Precautions and Water Supply, by Air Commodore J. M. Bonham-Carter and Colonel A. J. G. Bird, 625. See *Erratum*, 656; Water Charges, by J. F. Haseldine, 625; Protection of Underground Water Supply, with Special Reference to Town and Country Planning Act, by E. Morton, 625; Avoidance of Frost Bursting in Water Pipes, by Dr. J. McKeown, 625; Nitrogen Balance of Large Bodies of Water, by Dr. C. H. Mortimer, 691; Algæ as Indicators of Water Conditions, by Dr. M. Rosenberg, 691; Methods of Heating and Ventilation of Buildings, by A. Richardson, 691; Problem of Air-Raid Shelters, by E. J. Goodacre and J. R. Barron, 692; Purification of Sewage in Covered Filters, by J. Hurley and M. Lovett, 692; Effect of Pressure on Rate of Oxidation of Sewage in Presence of Activated Sludge, by R. Hicks, 692; The Engineer's Contribution to the Public Health Services, by C. L. H. Humphreys, 692; Sewage Disposal and River Pollution, by J. H. Garner, 749; Air-Raid Precautions as Applied to Sewage Undertakings, by F. W. Allen, 750; Garage Accommodation for Cleansing and Transport Undertakings, by J. L. Beckett, 750; Gas in Service of Public Health, by W. L. Howe, 750; Design of Sewage Works for Town of about 20,000 Population, by F. H. Heaton, 750
Puddled Iron. See *Iron*
Pugh, C. H., Ltd., 28-in. Petrol-Driven Lawn Mower, 643*
Pullin, Dr. V. E., on X-Ray and Gamma-Ray Methods of Testing Materials, 652
Pullomax Sheet-Metal Shearing Machine, 265
Pulverised Coal, Gasification of, with Oxygen under Pressure, 603
Pumps, Air. See *Air Compressors*
— Car-Washing, with Pulsating Delivery (Lee Guinness Hydro-Pulsator Co., Ltd.), 288*
— Centrifugal, Deichow Hydro-Electric Plant, 36*
— — Dredging, Drag-Suction Dredger "Fu-Shing," 495*, 577*
— — Federal Hydraulic Laboratory, Zürich, 5*
— — Flow of Liquid through, 270*
— — High-Speed, Drag-Suction Dredger "Fu-Shing," 579*
— — Model Tests of, 244*, 252
— Circulating, for 1,000-lb. La Mont Boiler 416*
— Feed, Electrically-Driven Multi-Stage (G. & J. Weir, Ltd.), 154*
— — for 1,000-lb. Pressure La Mont Boiler, 504*
— Fire-Fighting, Petrol-Driven, on Trailer (J. Beresford & Son, Ltd.), 528
— Oil, Mechanical, High-Pressure (Progress Industries, Ltd.), 777*
— Positive-Action (Mirrlees, Bickerton & Day, Ltd.), 515*
— Rotary, Positive Displacement (Drum Engineering Co., Ltd.), 274*
— Storage Hydro-Electric Plants, Germany, 36*
— Sulphuric-Acid, Contact Sulphuric-Acid Plant, 519*
— Trailer, Petrol-Driven (Scammell Lorries, Ltd.), 582*
— Vacuum, Double-Acting Dry (Reavell & Co., Ltd.), 303*
Pumping Plant, Irrigation, United Provinces in India, 768*
— — S.S. "Queen Elizabeth," 383
— Set, Portable, Petrol-Driven (Ransomes & Rapier, Ltd.), 442*
— Station, Model of, 315*
— Unit, Shallow-Well, Petrol-Driven (J. Fowler & Co. (Leeds), Ltd.), 96*
Purification of Sewage. See *Sewage*
— of Water. See *Water*
Pyrometer, Recording, for 40-ton Annealing Furnace (Foster Instrument Co.), 434
— Suction, Theory and Application of, 683
— See also *Thermocouple* under *Electric*

Q.

QUANTUM Mechanics, Elements of (Review), 357
Quarry Plant, St. Austell, Cornwall, 596*
Quarrying, Egyptian Methods of, 541*
"Queen Elizabeth," S.S., Launch of, 381*, 425*, 646
— Mary College, London, Guild of Friends of, 169
— — S.S., Record Crossings, 223
Queensland Department of Mines, Annual Report, 768
— Direct Road Construction by Heat Treatment of Soil (L. R. H. Irvine Process), 39*
— Government Railways, Annual Report, 47
Quicksilver. See *Mercury* and *Metal-Price Diagrams*
Quill-Drive on Simplex Bogie for Electric Traction, 189*

R.

RABOMA-Maschinenfabrik Herman Schoering, Radial Drill with Pre-Selective Gear, 375* See *Addendum*, 477
Radial Drill. See *Drill* under *Machine Tools*
Radiation Investigations at National Physical Laboratory, 668
Radicon Worm-Reducing Gear, 655*
Radio Department, National Physical Laboratory, Work of, 726
Radiological Examination of Metals, 653
— Investigations at National Physical Laboratory, 623*
Radiotelegraphy. See also *Telegraphy, Wireless*
Radiotelephony. See also *Telephony, Wireless*
Radium Detector Neon-Tube, 624*
— in Non-Destructive Testing, 652
Rail, Manganese-Steel, Newcastle-upon-Tyne Railway Junction, 584*
— and Road Transport in Ceylon, 368
— Steel, Prices. See *Metal-Price Diagrams*
Railcars. See *Carriages, Railway*
Railton Motor Car, 2,500-b.h.p., Record Speed with, 281, 397
Railroad. See *Railways*
Railway Accidents. See *Accidents*
— Argentine State, Articulated Railcars for, 702*, 756*
— Biel–Meinisberg, Switzerland, Electric Railcar with Simplex Bogie, 188*
— Board, Indian, Annual Report, 76. See *Addendum*, 134
— Bombay, Baroda and Central India, Air Compressor with Automatic Control, 760*
— Bridge. See *Bridge*
— Buenos Aires Provincial, Service Results with 270-b.h.p. Diesel-Electric Railcars, 461
— — Ayres Great Southern, 900-h.p. Diesel-Electric Locomotives, 48
— Carriage. See *Carriage*
— Ceylon Government, Administrative Report, 268
— Charges, Regulation of, 711
— Coachwork, Double End-Tenoning Machine for (T. Robinson & Sons, Ltd.), 745*
— and Cross-Channel Services, 598
— Developments in Iran, 156
— Electric, Power Supply for, 709
— Electrification of, 755
— — Multiple-Unit Trains on, 756
— German, Electric Power Supply for, 755
— Japanese Electric, Power Supply for, 709
— London and Birmingham, Centenary of, 368, 594
— — Midland & Scottish, Lake Motor Launch "Swan," 72; School of Transport, Derby, 126*; Report on Oakley Junction Accident, 214; Trent Valley Junction Reconstruction, 225*; Report on Ruthergien Accident, 256; Calculation of Train Running Times, 282; Apsley Station, 402*; Centenary Dinner, 594. See 368
— — and North Eastern Report on Castlecary Accident, 16; "Flying Scotsman" Trains, 41*; Record Speed of "Coronation Train," 74; Conversion of Atlantic Type Locomotive, 127; Train for London–Harwich Service, 456*; Re-laying Newcastle-upon-Tyne Junction, 584*
— Locomotive. See *Locomotive*
— Motor Carriage. See *Carriage*
— New Zealand Government, Annual Report, 425
— Post Office, London, Mechanical Equipment of, 698*
— Queensland Government, Annual Report, 47
— Rolling Stock. See *Carriages; Locomotives; Wagons*
— Signalling. See *Signalling*
— Sleepers, Preservation Treatment of, Investigations on, 310
— South African, Electricity Supply, 139; Double End-Tenoning Machine for Coachwork, 745*
— — Australian, Annual Report, 223
— Southern, Electrification to Portsmouth via Horsham, 20; Carriages for London–Bournemouth Service, 177*
— Swedish, Electrification of, 160
— Train Brake. See *Brake*
— Transport, School of, Derby, 126*
— Tube. See *Underground*
— United States, Comfort and Speed in, 480
— Wagons. See *Wagons*
— World, Progress of Electrification, 202*
— See also PARAGRAPH INDEX
Rainfall, Afforestation and Soil Erosion, 570, 638
— and Floods in North India, 425
— and Run-off on Dartmoor, 114
— and Run-off in New England, 54
— and Water Level at Chilgrove, Sussex, 714
Raistrick, Dr. A., on South Yorkshire Iron Industry, 760
Rake, Expanding, Tractor-Operated (Harrison, McGregor & Co., Ltd.), 30*
"Ramb I" and "Ramb IV," M.88., for Banana Carrying, 216*
Rand Water Board, South Africa, Annual Report, 309
Randupson Cement-Sand Plant for Foundry, 430*
Rangoon, Port of, Annual Report, 767
Ransomes & Rapier, Ltd., 5-cub. ft. Four-Purpose Excavator, 442*; Portable Petrol-Driven Pumping Set, 442*
Raw-Materials Survey, Hull Development Committee, 137
Raworth, A., Southern Railway Electrification to Portsmouth via Horsham, 20
Rayleigh, Lord, on Vision in Nature and Vision aided by Science, 221. See 251
Raynor, G. V., on Constitution of Magnesium-Rich Alloys, 567; on Liquidus and Solidus Curves of Magnesium Alloys, 567
Rays, Electric. See *Cathode; Röntgen*
— Gamma. See *Gamma*
Reagel, F. V., Joints in Concrete Pavements, 664
Rearmament Programme and Export Trade, Maintenance of Balance between, 708
Reavell & Co., Ltd., Double-Acting Dry Vacuum Pump, 303*
Recorder, Temperature, for 40-ton Annealing Furnace (Foster Instrument Co.), 434
Recording Apparatus for Whirl of Diesel-Engine Crankshaft, 6, 21*
Rectifier Panels, Mercury-Arc (British Thomson-Houston Co., Ltd.), 210*
Redmayne, Sir R., on Coal Consumption in Great Britain, 33
Reduction Gears. See *Gears; Marine Propulsion; Motor-Car Details*
Reed-Prentice Corporation, Die-Casting Machines, 294*
Reference Books. See *Annuals* and LITERATURE INDEX
Refractive Index of Air, National Physical Laboratory Investigations on, 267
Refractories, Institution of Gas Engineers' Investigations on, 658
— National Physical Laboratory Investigations on, 237
— Repair by Blow-Pipe Spraying, 658
— Materials. See also *Firebricks*
Refrigeration and Fish Preservation, 308
— Household Electric (Review), 356
— Plant, Automatic Expansion Valve for (British Thermostat Co., Ltd.), 311*
— Practice, National Physical Laboratory Investigations, 595
Refrigerator for Optical Works (General Electric Co., Ltd.), 655
Refuse-Collecting Vehicle with Compressing Gear (J. I. Thornycroft & Co., Ltd.), 642*
— Collection, Relay System of, 624
— — and Street Cleansing, Cost of, Report, 483
— Vehicle, Compression (Transport Engineering, Ltd.), 543
— Collector, Bin-Tipping (Walker Brothers (Wigan), Ltd.), 642*
— — and Decontaminator (Associated Equipment Co., Ltd.), 642*
— Container, Self-Sealing Dustless (Shelvoke & Drewry, Ltd.), 643*
— Disposal Plant, Stockholm, 448
Regenerative Furnace. See *Furnace*
Regent-street Polytechnic, London, Prize Distribution, 586
Regia Azienda Monopolio Banane, M.88. "Ramb I" and "Ramb IV," 216*
Register of Engineers for National Service, 395. See 250, 423. See LETTERS, 457 479, 530
Regulator, Pressure, for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 669*
— Transformer-Voltage (Metropolitan-Vickers Electrical Co., Ltd.), 625
Reheating Furnace. See *Furnaces*
Reid, K. M., on Seeing on the Highway, 664
Reif, Dr. H., on Vienna Ship-Model Testing Tank, 575
Reinforced Concrete. See *Ferro-Concrete*
Relaxation Applied to Flow of Compressible Fluid, 251
— Method for Solution of Poisson's Equation, 251
Relay Contactor, Inductive, Greenly, 459*
— System of Refuse Collection, 624
Renault Transmission System for Railcars, 622
Rendel, Palmer & Tritton, Waterloo-Bridge Reconstruction, 587*; Centenary Dinner, 740
Reo Motors, Ltd., 3-ton Motor Vehicle with Cattle Truck, 32*
Repeated Stresses. See *Alternating Stress* under *Tests (Materials)*
Report, African Pencil Cedar, 292
— Annual, Alkali, Etc., Works, 138
— — British Cast Iron Research Association, 744
— — British Non-Ferrous Metals Research Association, 28
— — Building Research Board, 105
— — City and Guilds of London Institute, 364
— — Electricity Commissioners', 510
— — Factories and Workshops, Home Office Inspector's, 193, 195
— — Food Investigation Board, 308
— — Forest-Products Research Board, 310
— — Fuel Research Board, 765
— — India Store Department, London, 621
— — Industrial Health Research Board, 655
— — Ministry of Health, 222
— — National Physical Laboratory, Work of, 18, 62*, 107*, 151*, 196*, 236*, 266*, 297, 338*, 370, 440*, 526*, 550*, 594* 623*, 666*, 711*, 725
— — New Zealand Government Railways, 425
— — Ontario Hydro-Electric Power Commission, 164
— — Port of London, 251
— — Port of Rangoon, 767
— — Progress of Rubber Technology, 563
— — Queensland Department of Mines, 768
— — Rand Water Board, South Africa, 309
— — Research Committee of Institution of Automobile Engineers, 397
— — Road Research Board, 592
— — Safety in Mines Research Board, 718
— — Secretary for Mines, 620
— — South African Electricity Supply Commission, 139
— — South Australian Railways, 223
— — United States Bureau of Mines, 403
— Board of Trade, Boiler Explosion Inquiries, 147, 321, 450
— — of Trade, Survey of Industrial Development, 164
— British Railway Accidents, 1937, 159
— Cast Irons, High-Duty, 742, 745*
— Castlecary Railway Accident, 16
— Central Advisory Water Committee, 77
— Ceylon Government Railway, 368
— Charing Cross Underground Railway Accident, 396
— Chemistry Research Board, 1935–37, 395
— Coal for Ship Propulsion, 165. See LETTER, 214
— Corrosion of Coal-Tar Stills, 333, 396
— Department of Business Management, London School of Economics, 189
— Deterioration of Structures in Sea Water, 359
— Dry Rot in Wood, 463
— Drying and Dewatering of Coal, 460
— Economic and Commercial Conditions in Iran, 156
— — and Commercial Conditions in Iraq, 250
— — Conditions in Syria and the Lebanon, 604
— Electrical Accidents and their Causes, 708
— Electricity in Mines, 1937, 367
— Freezing of Building Materials, Experiments on, 291
— Friction of Oscillating Bearing, 170
— Gas Works Safety Rules, 569
— Import Trade of India, 1937–38, 272
— Institution of Mechanical Engineers Committee on High-Duty Cast Irons, 742, 745*
— — of Structural Engineers, on Air-Raid Precautions, 569
— Kiln-Seasoning Treatments on Teak, 52
— Lighting in Factories, 650
— Limestones of Ontario, 305
— Machinery and Equipment for Bending Wood, 389
— Minerals of British Columbia, 195
— Ministry of Transport, on Experimental Work on Roads, 684
— Motor Industry of Great Britain, 1938, 337
— Nickel-Silver, Survey of Published Information on, 259
— Oakley Junction Railway Accident, 214
— Preservation of Countryside, 396
— Production of Active Carbon from Bituminous Coal, 408
— — of Aromatic Hydrocarbons from Phenols, 464
— Refuse Collection and Street Cleansing, Cost of, 483
— Regulations for Earthing Electrical Installations to Water Pipes, 165
— Ruthergien Railway Accident, 256
— Steel-Castings Research Committee, 548. See 581
— Stresses in Reinforced-Concrete Piles during Driving, 87
— Strip Mining of Bituminous Coal in United States, 227*
— Technical Colleges of South Africa, 248
— Transport Reorganisation in Northern Ireland, 651
— Transportation of Sand in Pipe Lines, 158
— on Unaccounted-for Town Gas, 718
— Waterloo Tube-Railway Accident, 71
— See also *Board of Trade*
Republic Steel Corporation, Electric-Furnace Practice at, 540
"Repulse," H.M. Battle Cruiser, Stresses in, 6

Research Association, British Coal Utilisation, Work of, 629; Presidential Address, by Sir E. Williams, on Work of Association, 740
— — Cast Iron, British, Annual Report, 744; Annual Luncheon, 744
— — Non-Ferrous Metals, British, Annual Report and Lunch, 28; Report on Nickel-Silver, Survey of Published Information, 259
— Board, Building, Annual Report, 105
— — Chemistry, Report for 1935–37, 395
— — Forest-Products, Report on Kiln-Seasoning Treatments of Teak, 52; Annual Report, 310; Report on African Pencil Cedar, 292; Report on Dry Rot in Wood, 463
— — Fuel, Test of Morgan Rotary-Retort, Low-Temperature Carbonisation Plant, 113; Report on Production of Active Carbon from Bituminous Coal, 408; Report on Production of Aromatic Hydrocarbons from Phenols at Atmospheric Pressure, 464; Annual Report, 765
— — Industrial Health Annual Report, 655
— — Road, Annual Report, 592
— — Safety in Mines, Annual Report, 718
— Coal Utilisation, Co-operation in, 628
— Committee of Institution of Automobile Engineers, Annual Report, 397. See 107
— — Institution of Mechanical Engineers, High-Duty Cast Iron, 742, 745*
— — Lubrication, Report on Friction of Oscillating Bearing, 170
— — Steel-Castings, Report, 548. See 581
— Department, Scientific and Industrial, Report on Freezing of Certain Building Materials, 291; Report on Corrosion of Coal-Tar Stills, 333, 396; Report on Deterioration of Structures in Sea Water, 359; Exhibits at Building Trades Exhibition, 373; Report on Machinery and Equipment for Bending Wood, 389; Advisory Committee on Switchgear Testing, 511
— and Development Council, Tin, International, High-Speed Repeated-Impact Testing Machine, 611*. See 235*, 295*. See LETTER, 299*
— Engineering, Policy of Universities towards, 249, 251, 260. See LETTERS, 299, 530
— — Royal Swedish Institute for, Symposium on Chemistry of Cements, 195
— High-Duty Cast Iron, Institution of Mechanical Engineers' Report on, 742, 745*
— Laboratory, Chemical, Teddington, Investigation on Corrosion of Coal-Tar Stills, 333, 396
— — Forest Products, Report on Dry Rot in Wood, 463
— — Hadfield Metallurgical, Sheffield University, 362*
— — Institution of Automobile Engineers, Work of, 107, 397
— — Road, Investigations by, 380, 435*; Automatic Traffic Counter, 613*
— — United States Naval, Electro-Magnetic Testing of Steel Plates, 141
— on Materials and Modern Design, 80, 143*
— Naval, Essential Elements in, 141
— Road, at National Physical Laboratory, 151
— Royal, M.S. "Research," 226
— and Small Consumers of Coal, 654
— Station, Building, Garston, Investigations at, 105; Experiments on Freezing of Building Materials, 291; Investigations on Settlement Analysis of Engineering Structures, 310, 403*
— — Fuel, Gas Investigations at, 603
— — Post Office, Investigations on Corrosion of Galvanised Iron Wire, 27, 54*
— Work of Institution of Gas Engineers, 569, 602, 658, 718
— See also *National Physical Laboratory*
Reservoir, Burrator, Submerged Outlet Valves, 114
— Nitrogen Balance of Water in, 691
Resins, Synthetic, Radiological Examination, 624
— — Reinforcement of Wood with, 655
— Use in Tests of Materials, 280*, 310
— See also *Plastics*
Resistance, Air. See under *Aeronautics*
— of Flow through Nests of Tubes, Experiments on, 605*, 665*, 723*
— of Ships. See *Ship Resistance*
Resonance in Relation to Mechanical Vibrations, 282
Retort, Gas, Hot-Patching by Blow-Pipe Spray Welding, 658
— for Oil-Shale Distillation, 46
— Rotary, Morgan, for Low-Temperature Carbonisation, Test of, 113*
Reviews. See LITERATURE INDEX
Reyrolle, A., & Co., Ltd., Diagram Control Board for Power Stations, 328*; "Bus-Bar-Zone Protective Systems, 329*
Rhead, T. F. E., on Hot-Patching of Gas Retorts, 658
Rhine–Main–Danube Canal, 118*
Rib for Unit-Construction Aeroplane Shed, Tests, 728*
Ribaud, G., on Measurement of Flame Temperature, 683
Ricardo, H. R., on Progress of Internal-Combustion Engine, 80
Rice, H. B., on Metallized Zinc Coatings, 657*
Richards, C. E., on Corrosion of Galvanised Iron Wire, 27, 54*
Richards, G., & Co., Ltd., 72-in. Horizontal Boring and Facing Machine, 202*
Richardson, A., on Heating and Ventilation of Buildings, 691
Richmond & Chandler, Ltd., Electric Hoists, 682
Richter, H., By-Pass Valve for Steam Trap, 604*; "Vaposcope" Indicator for Steam Traps, 691*
Rifles, Flip in, Experiments on, 45
Rigid Airships. See *Airships* under *Aeronautics*
Ring, Taper-Bore, Strength of, 171*
River Rober, Germany, Deichow Hydro-Electric Plant, 36*
— Clyde and Glasgow Harbour, 109
— Colorado, Boulder Dam Power House, 59*, 179*, 239*, 549*, 608*, 669*, 692*
River Connecticut, Erection of Balanced-Cantilever Bridge over, 553*, 676
— Control Problems, 579, 638, 681*, 740, 754
— Flow Problems, 61, 165, 223, 241
— Ganges, Hardinge Bridge over, 650
— Gogra, India, Irrigation-Pumping Plant, 768*
— Mississippi, Early Training Works on, 651
— Nile, Hydro-Electric Developments on, 453
— Oued Beht, and Weir, Model of, 149*
— Platte, Colorado Self-Supporting Horizontal Pipe-Line across, 465*
— Pollution and Sewage Disposal, 749
— St. Clair, Blue Water International Bridge over, 377*
— St. Lawrence, Thousand Islands Bridge over, 377*
— Severn, Sharpness Bridge over, Wind-Pressure Observations on, 197
— Thames, London, Waterloo Bridge over, Reconstruction of, 587*; Development of South Bank of, 593; Blackwall Tunnel under, Duplication of, 680
— Training in Connection with Bridges, 649
— Whangpoo and Yangtse, Flow Problems of, 61, 165, 223, 241
Rivets, Mechanical Properties of, Investigations on, 773
Riveted Joints, Fatigue Tests of, 773
Riveter. See *Machine Tools*
Road Accidents. See *Accidents*
— Bituminous Surfaces, Heavy Types, 664
— Brick, in United States, Developments in, 233
— Bridges, International, between Canada and United States, 377*
— Concrete, Contraction and Expansion Joints in, 664
— Conferences in United States, 663
— Construction, Direct, by Heat Treatment of Soil, Irvine Machine for, 39*
— Curvature and Speed of Vehicles, 664
— Design for Safety and Speed, 663
— Development in Great Britain, 378, 435*. See 231
— Experimental Work on, Ministry of Transport's Report, 684
— Lighting of, Investigations on, 664
— Maintenance Machine (Allen Road Machinery Corporation), 118*
— Making Material, Experiments on Molasses as, 321
— Maybury School of Highway Engineering, London, 276
— and Rail Transport in Ceylon, 368
— Research Board, Annual Report, 592
— — Laboratory, Investigations by, 380, 435*; Automatic Traffic Counter, 613*
— — National Physical Laboratory, 151
— Roller, Motor Three-Axle Tandem (Buffalo-Springfield Roller Co.), 56*
— — 6-ton, 18½-b.h.p., Oil-Engined (Wallis & Steevens, Ltd.), 29*
— — 8-ton 28-b.h.p. Oil-Engined (Wallis & Steevens, Ltd.), 29*
— Suburban, Design and Construction of, 664
— Surfaces, Anti-Skid Properties of, 664
— — Experiments on, 685
— — and Skidding, Investigations on, 592
— Traction, Railless Electric. See *Trolley 'Bus*
— Traffic Counting System, 183
— and Traffic, Problems of, 710
— Transport, London Passenger Transport Board's Report, 564
— — in Northern Ireland, Reorganisation, 651
— — Vehicles, Producer-Gas Driven, Operating Results, 654
— — in Wartime, Producer-Gas Plants for, 737
— See also *Tar*
Roberts, D. E., on Development of Iron and Steel Industry, 519. See 509
Robertson, V. A. M., Reconstruction of King's Cross Underground Station, 265*, 296*, 386*. See *Erratum*, 444; Aldgate East Station Reconstruction, 531*
Robinson, P. J., Clarence Dock Power Station Extensions, 483
Robinson, R. S., on Noise Reduction in Ships, 766
Robinson and Steinman, Thousand Islands Bridge System, 377*
Robinson, T., & Son, Ltd., Centenary of, 246; Electrically-Driven Tenoning Machine, 259*; Planing and Surfacing Machine, 399; Mortising Machines, 400*; Totally-Enclosed Band Saw, 400*; Double End-Tenoning Machine for Railway Coach-work, 745*
Rock, Broken, Loading by Scraper (Holman Brothers, Ltd.), 255*
Rock, Rear-Admiral G. H., U.S.N., on Engineers and Civic Affairs, 17
Rodridge Hall, Wingate, Morgan Rotary-Retort Low-Temperature Carbonisation Plant at, 113*
Rodwell, J. A., on Water Wastage: Causes, Detection and Prevention, 114
Rogers, J. S., on Vibrograph for Fresh Concrete, 232*
Roller, J., on Heating-Stoves to Burn Lignite, 653*
— Road. See *Road Roller*
Rolling Mills, Development of, 520
— — Hot, 8-in. Double Two-High (Brightside Foundry & Engineering Co., Ltd.) 19*
— — Practice in America, 580
— — Pressure Recorder for (Cambridge Instrument Co., Ltd.), 320*
— — Strip-Gauging Indicator for (Cambridge Instrument Co., Ltd.), 320*
— of Ships. See *Ships*
— Stock on Indian Railways, 76. See *Addendum*, 134
— — New Zealand Government Railways, 425
— — See also *Carriages; Locomotives; Wagons*
Rolt, F. H., on End-Gauge Comparator of High Sensitivity, 183*
Roman Aqueducts, Description of, 542
Rome and Greece, Science and Engineering in, 541
Röntgen-Ray Examination of Alloys at National Physical Laboratory, 198
— — Investigations at National Physical Laboratory, 823*
— — Methods of Testing Materials, 652
— — Study of Strain in Metals, 62
Rooms, Air-Conditioned, for Tropics, 132
Root-Crop Gapper (E. H. Bentall & Co., Ltd.), 31*
Ropes, Wire. See *Wire Ropes*
Roses, Ceiling, Two and Three-Terminal, Specification, 647
Rosenberg, Dr. M., on Algæ as Indicators of Water Conditions, 691
Ross Institute Industrial Advisory Committee, Work on Tropical Hygiene, 132
Rota, General G., on Shipbuilding in Italy, 109
Rotary Blowers. See *Blowers*
— Engine. See *Engine; Aeronautics*
— Pump. See *Pump*
Rothermel, R. A., Ltd., Speed Controller for Motor Vehicles, 127*
Rotor, Steam Turbine, Deflection of, 181*
Roumanian State Railways, 4,400-b.h.p. Diesel-Electric Locomotive, 100*
Rounsefell, E. G., on Detergency and Glass Containers, 721
Royal Aeronautical Society. See *Aeronautical*
— Agricultural Hall. See *Exhibition*
— Eye Hospital, Eye-Protection Exhibition, 20

Royal Institution:

Conversazione, 566
Chemistry of Combustion, by Prof. A. C. G. Egerton, 566
Combination Tones in Sound and Light, by Sir W. Bragg, 593

Royal Sanitary Institute. See *Sanitary*

Royal Society:

Conversazione and Exhibition, 17
Pilgrim Trust Lecture, on Molecular Films, by Dr. I. Langmuir, 710

Royal Swedish Institute for Engineering Research, Symposium on Chemistry of Cements, 195
— Technical College, Glasgow, Calendar, 374
Rubber Bearing, National Physical Laboratory Investigations on, 107
— Chemistry, Modern (Review), 92
— Hose, Moulded, Specification, 276
— Industry, Institution of, Annual Report on Progress of Rubber Technology, 563
— and Metal, Metalastik System of Bonding, 391*
— Sheet, Elastic Properties of, 125
— Synthetic, Production of, 564
— Technology, Progress of, Annual Report on, 563
Rubery, Owen & Co., Ltd., Weldless-Steel Tube Shop, Chesterfield Works, 713
Ruff Fluidity Test for Steel, 548, 581
Rugby Works, British Thomson-Houston Co., Ltd., 48, 78
Runner for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 549*
— for 24,000-kW Kaplan Turbines, Deichow Hydro-Electric Plant, 36*
Rural Developments and Preservation of Countryside, 396
— Electrification in France, 202*, 499, 607
— — in Great Britain, 498, 607
Rusting. See *Corrosion*
Ruston & Hornsby, Ltd., 5½-b.h.p. Single-Cylinder Oil Engine, 29*
Ruston-Bucyrus, Ltd., Bulldrader with Adjustable Blade, 371*
Rutherglen Railway Accident, Report, 256

S.

S.L.M. Gearbox for Diesel Railcars, 631
Sablon, J. L. du, on Electrification of French Railways, 755
Safety Lamps, Electric, Colliery, Experiments, 718
— of Life at Sea. See *Life-Saving; Water-Tight Subdivision*
— in Mines Research Board, Annual Report, 718
— on Roads, Factors affecting, 435
— Regulations for United States Ships, 116
— Rules for Use in Chemical Works, 276
— — for Gas Works, Report on, 569
Sagar, J., & Co., Ltd., Four-Cutter Planing and Moulding Machine, 528*
Saint. See *St.*
Saklatvala, Sir N. B., the Late, 134
Sale, Tilney & Co., Ltd., 30-h.p. Minneapolis-Moline Agricultural Tractor, 681
Salerni Hydro-Kinetic Power Transmitter, 268*, 482
Salter, G., & Co., Ltd., Sand-Compression Testing Machine, 214*
Sambrook, K. H., on Petroleum Fuels for Agriculture in Great Britain, 608
"San Francisco," M.S., Wave Measurement on board, 6
— — Oakland Bay Bridge, Tests of Riveted Joints, 773
Sand, Cement, Preparation Plant for Foundry (August's, Ltd.), 430*
— Compression Tester (G. Salter & Co., Ltd.), 214*
— Moulding, Steel-Castings Research Committee's Investigation on, 548, 581
— Transportation in Pipe Lines, Investigations on, 158
Sandford, R. L., on Non-Destructive Testing, 652
Sanitary Institute, Royal, Courses in Sanitary Science, 255; Certificate Courses at, 584
Sanitation, Engineer's Contribution to, 692
Sara, Hardinge Bridge at, 649
Sarjant, Dr. R. J., on Open-Hearth Furnace Design and Control, 176
Saunders, O. A., on Errors in Gas-Temperature Measurement, 683
Saunders Valve Co., Ltd., "Straightway" Valve, 625
Sauveur, Prof. A., on Nomenclature in Ferrous Metallography, 281
Saville, C. M., on Rainfall and Run-off in New England, 54
Saws. See *Machine Tools*
Scaffolding, Metal, Exhibits at Building Trades Exhibition, 530
Scaling of Steel, Influence of Furnace Atmosphere on, 570
Scammell Lorries, Ltd., Gully Emptier with Monitor, 582*; A.R.P. Unit with Trailer Pump, 582*
Schack, A., on Suction Pyrometers, 683
Schichau, F., G.m.b.H., Drag-Suction Dredger "Fu-Shing," 495*, 577*, 638*
Schmeltzer, J. E., on Safety Regulations for United States Ships, 116
Schnadel, Prof. G., on Ocean Waves, Freeboard, and Strength of Ships, 6
Scholarships. See *Education*
Schrader, Prof. H. J., on Friction of Railway Brake Blocks, 719
Schultz, A., on Metallic Materials for Thermo-couples, 683
Schultz Machine Co., Die-Casting Machines, 293*
Science in the Army, Exhibition of, Science Museum, 621
— and Engineering in Ancient Times, 541*
— Museum, South Kensington, Cyclotron and Cyclotron Models, 309; Chinese Junks at, 566; Science in the Army Exhibition, 621
— of Seeing (Review), 640
Scientific Apparatus, Exhibition, Royal Society Conversazione, 17
— Instruments, Trend of Design in, 310, 317*
— Management. See *Works Management*
— Research. See *Research*
— Societies. See *Institutions*
— and Technical Periodicals, Evaluation of, 707
Scotland, Institution of Engineers and Shipbuilders in. See *Engineers*
Scott, Sir G. G., Waterloo-Bridge Reconstruction, 587*
Scott, W. H., the Late, 332
Scottish Oil-Shale Industry, Position in, 46, 156
Scrapehauler, for Loading Rock from Mine Dump (Holman Brothers, Ltd.), 255*
Scraper, Wagon, Four-Wheeled (Atlas Scraper and Engineering Co.), 629*
Screen, Travelling, for Experimental Channel, Federal Hydraulic Laboratory, Zürich, 5*
Screening Plant, Stone (Goodwin, Barsby & Co., Ltd.), 597*
Screw-Cutting Machine. See *Screw* under *Machine Tools*
— Gauges, Tapered, Pitch-Testing Apparatus for, 266*
— Propellers. See *Propellers; Aeronautics*
— Threads, Cycle, Specification, 773
Scroll-Case for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 608*
Sea Water, Deterioration of Structures in, 359
Seager, Dr. G. C., on Tensile Stresses in a Bearing Metal, 235*, 295*. See LETTER, 299*; on High-Speed Repeated-Impact Testing Machine, 611*
Seaplanes. See *Aeronautics*
Secondary Battery. See *Accumulator* under *Electric*
— Schools and Education. See *Education*
Sedimentation Apparatus for Fineness Measurement of Powdered Materials, 494*
Seeing, Science of (Review), 640
Seizing Temperature of Bearings, National Physical Laboratory Investigations on, 64*
Selas Gas & Engineering Co., Ltd., Gas-Fired Muffle Furnace, 213*; Gas-Fired Combustion Type Furnace, 214*
Sempill, Lord, on International Air Transport, 109
Separator, Cyclone Type, for Blast-Furnace Gas, Delray Power Station, 207*
Serck Radiators, Ltd., Mobile Gas-Fired Air Heater, 513*
Service, T. M., on Acid Open-Hearth Steel Melting Practice, 148
— Aviation. See *Aeronautics*
Servo-motors, Wicket Gate, for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 610*
Set Square, "Trig-Angle," Adjustable (A. G. Thornton, Ltd.), 365
Settlement Analysis of Engineering Structures, 310, 403*
Severn, River, Sharpness Bridge over, Wind-Pressure Observations on, 197
Sewage Disposal, Ministry of Health Report, 222
— — and River Pollution, 749
— Effect of Pressure on Activated-Sludge Process, 692
— Purification in Covered Filters, 692
— System, Denver, Colorado, Self-Supporting Horizontal Pipe-Line Span, 465*
— Undertakings and Air-Raid Precautions, 750
— Works, Design of, 750
— See also PARAGRAPH INDEX
Sewerage Pumping Plant, Model Tests of, 244*, 314
Sewers, Main, Construction of, including Timbering of Excavations (Review), 168
Shaft Brackets, Propeller, Strength of, 695*
— Crank. See *Crankshaft*
— Deformation of, Influence of Heat Treatment on, 145*
— High-Speed, Measurement of Torque in, 69*
— and Holes, Fitting of. See *Gauges; Gauging*
— for 115,000-h.p. Hydraulic Turbine Boulder-Dam Power House, 550*
Shanks, A., & Son, Ltd., 36-in. Motor Mower with Trailer Seat, 584*
— Grass Cutter-Collector, 66*
Shaping Machine. See *Machine Tools*
Sharpness Bridge over River Severn, Wind-Pressure Observations on, 197
Shear Tests. See *Tests* (*Materials*)
Shearing Machines for Animals, Petrol-Driven (Cooper-Stewart Engineering Co., Ltd.), 67*
— — Metal. See *Machine Tools*
Sheave, Welded, Tower-Type Winding Plant, Fushu-Ryuho Colliery, Mukden, 671*
Shed, Aeroplane, Transportable, Callender–Hamilton Unit Construction, 727*
Sheepbridge Stokes Centrifugal Castings Co., Ltd., "Loded" Cast Irons, 710
Sheet-Metal Aircraft Parts, Drop-Stamping Plant for, 52*
— — Structures, National Physical Laboratory, Investigations on, 151
— and Plate Metal Work, Practical (Review), 92
— Steel, Galvanised Corrugated, Specification, 320

Sheffield Gas Company, Four-Lift Spiral-Guided Gasholder, 323*, 357*
— University, Sir Robert Hadfield Metallurgical Laboratories, 362*; Lectures on Electric Traction, 444
Shelter, Air-Raid, Reinforced-Concrete ("Twisteel" Reinforcement, Ltd.), 529
— — Raid, Models of Steel Construction for, 335, 420
— — Raid, Planning of, 572
Shelvoke & Drewry, Ltd., Self-Sealing Dustless Refuse Container, 643*
Ship's Boiler Room, Air Supply to, Model Tests, 314*
— Canal. See *Canal*
— Cargo, Trends in Design and Construction, 84*
— Classified, Lloyd's Register Report, 592
— Coal as Fuel for, 165. See LETTER, 214
— Coastal, Model Experiments at National Physical Laboratory 339
— under Construction, Lloyd's Statistics, 77, 453
— Diesel-Engined. See *Motorships*; *Marine Propulsion*
— Hold, Experimental, Food Investigation Board's Experiments in, 308
— Hull, Calculation of Natural Frequencies of, 347, 376*
— Lost, Lloyd's Statistics, 132, 774
— Merchant, Experiments at National Physical Laboratory, 338*, 370
— — United States, Safety Regulations for, 116
— Model Experiments. See *Tank Experiments* and *Ship Resistance*
— Motor. See *Motorships*; *Marine Propulsion*
— Noise Reduction in, Experiments on, 766
— Plating, National Physical Laboratory Investigations on, 152*
— Propellers. See *Propellers*
— Propulsion. See *Marine Propulsion*; *Engines*; *Turbines*; *Propellers*
— Resistance, Experiments at National Physical Laboratory, 338
— — Model Tests, 253. See *Erratum*, 284
— — Vienna Ship-Model Testing Tank, 575
— Rolling of, Investigation on, 6
— in Rough Water, Model Experiments, 338
— Stability Regulations for United States Ships, 116
— Steam Drifters, Tank and Sea Tests, 599*, 662*
— Strength, Freeboard, and Ocean Wave Action, 6
— Stresses in, Experiments on, 6
— Twin-Screw, Model Experiments at National Physical Laboratory, 340
— Vibration in, Causes and Cures, 283, 345* 375*
— Water-Tight Subdivision of. See *Water-Tight*
— Wave Resistance of, Investigations on, 338
— See also *Marine*; *Motorships*; *Shipping*; *Steamers*; *Warships*; and PARAGRAPH INDEX
Shipbuilders and Engineers, North-East Coast Institution of. See *North-East Coast*
— — in Scotland, Institution of. See *Engineers*
Shipbuilding in 1938, 734, 762. See also vol. cxlvii
— British, and National Economics, 33
— Construction of S.S. "Queen Elizabeth," 381* 646
— Electrodes for, Specification, 17
— in Italy, 109
— Materials, Testing Research Applied to, 6
— S.S. "Mauretania," 121*, 163, 168*. See *Addendum*, 218
— Naval. See *Warships*
— Safety Regulations for United States Ships, 116
— Strength of Propeller-Shaft Brackets, 695*
— — Test of Ships' Plating, 152*
— Trends in Design and Construction, 84*
— Vessels under Construction, Lloyd's Statistics, 77, 453
— Water-Tight Subdivision. See *Water-Tight*
— See also *Motorships*; *Steamers*; *Naval*; *Warships* and PARAGRAPH INDEX
Shipping, British, and Overseas Trade, 511, 679
— — and World Statistics of, 679
— Grain and Grain Transport, 571
— Industry, Position of, 33
— Lloyd's Register, Annual Report, 592
— — Register, Vessels under Construction, 77, 453
— Lost, Lloyd's Statistics, 132, 774
— Service, Transatlantic, by Oranje Line, 539
Shock Tests. See *Impact Tests* under *Tests* (*Materials*)
Shop Management. See *Works Management*
Short Brothers (Rochester and London), Ltd., Mayo Composite Aircraft, 137
Shovel. See *Excavator*
Show. See *Exhibition*.
Shropshire, Worcestershire and Staffordshire Electric Power Co., Stourport Power Station, 48, 78
Siddall, G., on Aspirating Thermocouple for Gas Temperatures, 684
Siemens and General Electric Railway Signal Co., Automatic Traffic Counter, 613*
Siemens und Halske, Electron Microscope, 474*
Siemens Schuckert-Werke, Electrical Equipment for Tower-Type Winding Plant, Mukden, 671*
— Martin Furnaces. See *Furnaces*
Sieves for Fineness Measurement of Powdered Materials, 492*
Sievert, M., Portable Lead-Melting Furnace, 284
Signs, Incandescent Lamp, Canadian Specification, 494
Signals, Railway, Use of Propane Gas for, 709
Silencers for Motor-Cycles, National Physical Investigations on, 197, 667
Silentbloc, Ltd., Vibration Mounting for Generating Set, 185
Silica Bricks. See *Firebricks*
Silicon Iron, Magnetic Properties of, Investigation on, 326, 488*
— Steel, Use in Balanced-Cantilever Bridge over Connecticut River, 553*, 676
Silos, Storage, for Grain, 572
Silt-Bearing Rivers, Control Problems of, 579, 638, 681*, 740, 754
Silver, Prevention of Tarnishing of, 567
Simmerstat Control Switch for Electric Hotplates, 571*
Simmonds Aerocessories, Ltd., Factory with Air-Raid Shelter, 572
Simon-Carves, Ltd., Contact Sulphuric-Acid Plant, West Ham, 518*
Simons, W., & Co., Ltd., Launch of H.M. Boom-Defence Vessel "Barlow," 277; Launch of H.M. Boom-Defence Vessel "Barmouth," 475; Launch of H.M. Boom-Working Vessel "Moorland," 671
Sims, Dr. L. G. A., on Ballistic Measurements in Incremental Magnetism, 406*. See 326
Sir John Cass Technical Institute, Courses at, 312
Skempton, A. W., on Settlement Analysis of Engineering Structures, 403*. See 310
Skidding on Roads, Investigations on, 592, 664
— Tests of Motor Vehicles, 435*
Skin Friction. See *Aeronautics*; *Friction*; *Ship Resistance*
Slag. See *Metallurgy*
Sleepers, Railway, Preservation Treatment of, Investigation on, 310
Slough Gas Co., 1,102-ft. Borehole, 20
Sludge Pipe, Cast-Iron, Failure of, 148. See also *Sewage*
Slurry, Coal, Flocculation Treatment of, 687*
Smelting Furnaces. See *Furnaces*
Smith, Sir L. W., on Rearmament Programme and Export Trade, 708
Smith, S. Morgan, Co., Pressure Regulators for 115,000-h.p. Hydraulic Turbines, 669*
Smith, T., on Rest during Working Hours, 9
Smith, T., & Clarke, Ltd., Exhibits at Cardiff Engineering Exhibition, 626
Smith, T., & Sons (Rodley), Ltd., 10-cub. ft. Multi-Purpose Excavator, 626*
Smith, W. A., Drag-Suction Dredger "Fu-Shing," 495*, 577*, 638*
Smithfield Club Show, Agricultural Machinery at, 681, 732*
Smoke Abatement and Atmospheric Pollution, 280
— — at Alkali Works, Report on, 138
— — with Solid Fuel, 654
Smokeless Fuel. See *Coal*, *Low-Temperature Carbonisation*
Snell, Sir J., the Late, 79*
Snow Loader, Spiral-Feed (Barber-Greene Co.), 200*
Société l'Air Liquide, Reconditioning of Worn Metal Surfaces by Oxy-Acetylene Welding, 490
Society of Mines, Royal, History of, 81
— of Motor Manufacturers and Traders. See *Motor*
— Technical and Scientific. See *Institutions*
— Trade. See *Labour*; *Labour Notes*
Sohwal Power Station, United Provinces, India, 768*
Soil Erosion and River-Control Problems, 579, 638, 681*, 740, 754
— Mechanics, Building Research Board's Investigations on, 105
— — Road Research Board's Investigations, 592
— Road Construction by Heat Treatment of, Irvine Method, 39*
Soil Steriliser (Electro-Horticultural Equipment Co., Ltd.), 95*
Solutions, Colloidal. See *Colloids*
"Somali," H.M. Destroyer, Trials of, 734
Sorting Office, Packet and Letter, Mount Pleasant, London, Mechanical Equipment at, 353*, 437*, 523*, 635*, 698*
— Table, Potato, Hand-Operated (Cooch & Son), 94*
Sound-Absorbing Materials, Exhibits at Building Trades Exhibition, 529
— Insulation along Water Pipes, Investigation on, 667*
— Investigations at National Physical Laboratory, 666
— and Light, Combination Tones in, 593
Souter, W. A., on British and World Shipping, 679
South Africa, Electric Power Supply, Report, 139
— — Electricity-Supply Commission, Annual Report, 139
— — Rand Water Board, Annual Report, 309
— — Technical Colleges of, Report, 248
— African Railways and Harbours Board, Electricity Supply, 139; Double End-Tenoning Machine for Railway Coachwork, 745*
— Australian Railways, Annual Report, 223
— Kensington, Science Museum, Cyclotron and Cyclotron Models, 309; Chinese Junks at, 566; Science in the Army Exhibition, 621
— Wales, Iron and Steel Industry in, 519
— — and Monmouthshire School of Mines, Calendar, 374
— — Treforest Trading Estate, Steam and Water Supply, 97
— West, Notes from, 13, 43, 73, 103, 133, 161, 191, 219, 246, 277, 304, 335, 364, 393, 421, 449, 476, 507, 535, 560, 588, 617, 647, 676, 704, 735, 763. See PARAGRAPH INDEX
— Yorkshire, Notes from, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 420, 449, 476, 507, 535, 560, 589, 617, 647, 676, 704, 734, 762. See PARAGRAPH INDEX
Southampton Docks, Handbook on, 103
Southern Railway, Electrification to Portsmouth via Horsham, 20; Carriages for London-Bournemouth Service, 177*
Southwell, Prof. R. V., on Changing Outlook of Engineering Science, 260. See 249, 251, 299. See LETTER, 530
Sovex, Ltd., Twin-Band Riser Conveyor, 354*; Sorting Fittings, Mount Pleasant Sorting Office, 437*
Specific Heats of Gases, National Physical Laboratory Investigations on, 197
Specific Heat-Temperature Curves of Iron and Steel, 580
— — of Water and Steam, Determination of, 1*, 34*
Specifications, Standard. See *Standards*
— Testing of Galvanised-Iron Wire, Bearing of Corrosion on, 27, 54*
Spectra, Flame, National Physical Laboratory Investigations on, 238
Spectroscopy and Human Vision, 221
Speed-Changing Gears. See *Gears*; *Gearing*; *Marine Propulsion*; *Motor-Car Details*
— Controller for Motor Vehicles (R. A. Rothermel, Ltd.), 127*
— Record, Land, by Motor Car "Thunderbolt," 281, 397
— Reduction Gears. See *Gears*; *Gearing*; *Marine Propulsion*; *Motor-Car Details*
— Regulation. See also *Governor*
— Trials. See *Trials*
Spelter Prices. See *Metal-Price Diagrams*
Spillways, Boulder Dam, Model Experiments on, 15
Spinks, J., on Ballistic Measurements in Incremental Magnetism, 406*. See 326
Spinning Machine for Hume Concussional-Spun Concrete Pipes, 558*
Spirit, Motor. See *Motor Fuel*
Spoil Banks, Fires in, Investigation on, 138
Spooner Dryer & Engineering Co., Ltd., Drying Chamber for Coated Welding Rods, 613*
Spot-Light for Welding Work (Philips Industrial (Philips Lamps, Ltd.), 761
Spraying Apparatus, Agricultural, 26
— Outfit, Portable Power-Driven (Cooper, Pegler & Co., Ltd.), 682
Spreading Machine, Steam-Heated, Explosion from, 450
St. Austell, Cornwall, Quarry Plant, 596*
St. Clair River, Blue Water International Bridge over, 377*
St. Lawrence River, Thousand Islands Bridge over, 377*
St. Osyth Tide Mill, 445*
St. Venant Theory of Torsion of Cylindrical Bodies, 413
Stabilimento Grandi Motori Fiat, 3,600-b.h.p. Nine-Cylinder Oil Engines, M.S. "Ramb I," 216*
Stability of Aeroplanes. See *Aeronautics*
— of Ships. See *Ships*
Stamp-Cancelling Machine, Mount-Pleasant Sorting Office, 523*
Stamping Hammers. See *Machine Tools*
Standard Atlantic Liner, 163
— Association, Canadian Engineering, Specification for Portable Electric Displays and Incandescent Lamp Signs, 494
— Institution, British, Draft Specification, Cast-Iron Straight Edges, 114; Specifications: Cast-Iron Castings, 13; Electrodes for Shipbuilding, 17; Steel Bars and Wire for Concrete Reinforcement, 72; Questionnaire on Limits and Fits for Cylindrical Work, 137; Specifications: Electric Lighting Equipments, 219; Moulded Rubber Hose, 276; Bituminous Compounds for Cable Boxes, 277; Electric Cable Sheathings, 284; Steel Ducts for Electrical Services, 305; Milling Cutters and Reamers, 304; Galvanised Corrugated Sheets, 320; Contactors, 321; Specification for Sampling of Coal Tar, 341; Code for Automatic Oil-Burning Equipment, 365; Specifications: Cast-Iron Pipes, 393; Shanks for Welding Electrodes, 393; Die Blocks for Drop Forgings, 332; Carbon Brushes for Electrical Machines, 436; Draft Specification: Toolmakers' Straight-edges, 448; Specifications: Crucible Swelling Test for Coal, 473; Train-Lighting Accumulators, 491; Wire Ropes for Cranes, 494; Ceiling Roses, 647; Motor Starters and Controllers, 648; Wrought-Iron Gas Pipe, 718; Non-Metallic Ducts for Electrical Services, 762; Cycle Screw Threads, 773
— of Length, National Physical Laboratory Work on, 267
Standard Telephones and Cables, Ltd., Transmitter for Aberdeen Broadcasting Station, 332; Equipment for Anglo-French Radio-Telephone Link, 761
— U.S. Bureau of. See *United States*
Starters, Motor. See *Motors, Electric*
State Railways. See *Railways*
Station, Aldgate East Underground, Reconstruction, 531*
— Apsley, London Midland & Scottish Railway, 402*
— Euston, Railway Centenary Exhibition, 368. See 594
— Power. See *Power Stations*
— Underground, King's Cross, Reconstruction of, 265*, 296*, 346*. See *Erratum*, 444
Statistics, Trade. See *Trade*
Steam Boats. See *Steamers*; *Steam Dredger*; *Steam Drifter*
— Boilers. See *Boilers*
— Consumption. See *Trials*; *Coal Consumption*
— Dredger "Fu-Shing" (F. Schichau, G.m.b.H.), 495*, 577*, 638*
— Drifters, Tank and Sea Tests, 599*, 662*
— Engines. See *Engines*
— Equation of State for, 1*, 34*
— Generators (Review), 697
— High Pressures and Temperatures of, in American Power Stations, 451. See LETTER, 505
— — Pressure and Temperature, for Power Stations, 690
— Long-Distance Transmission of, 279
— Pipes, High-Pressure, Cathcart Works, G. & J. Weir, Ltd., 505*
— Saturated, and Air, Mixed, Temperature and Pressure of, 674*
— Superheater. See *Superheater*
— Supply, Treforest Trading Estate, South Wales, 97
— Total Heat of, 451
— Trap, By-Pass Valve for (H. Richter), 604*
— — "Vaposcope" Indicator, (H. Richter), 691*
Steam Trials. See *Trials*
— Turbines. See *Turbines*
Steamer "Canton," 458*
— Classified, Lloyd's Register Report, 592
— under Construction, Lloyd's Statistics, 77, 453
— Cross-Channel, Design of, 598
— Geared Turbines for. See *Marine Propulsion*
— "Gothic Star," Explosion of Evaporator, 321
— Introduction of Steam Turbines into, 680
— "Kingswood," Explosion of Auxiliary Boiler, 321
— Lost, Lloyd's Statistics, 132, 774
— "Mauretania," Launch of, 121*, 163, 168*. See *Addendum*, 218
— "Nantasket," Fire Tests on, 116
— "Normandie," Vibration in, 347*
— Oil-Tank, Trends in Design and Construction, 84*
— Propulsion of. See *Marine Propulsion*; *Engines*; *Turbines*; *Propellers*
— "Queen Elizabeth," Launch of, 381*, 425*, 646
— "Queen Mary," Record Crossings by, 223
— Resistance of. See *Ship Resistance*
— Rolling of. See *Ships, Rolling of*
— Stability of. See *Ships, Stability of*
— Water-Tight Subdivision of. See *Water-Tight*
— See also *Engines*; *Marine Propulsion*; *Shipbuilding*; *Shipping*; *Ships*; *Turbines*; *Warships* and PARAGRAPH INDEX
Steamships. See *Ships*; *Steamers*; *Steam Dredger*; *Steam Drifter*; *Warships*
Steels, Alloy, Fluidity of, Investigations on, 548, 581
— Arch Span, Thousand Islands Bridge over St. Lawrence, 377*
— Cast, Strength and Ductility during Cooling, 548, 581
— Castings, Relief of Internal Stress in, 230*
— — Research Committee, Report, 548. See 581
— — Thermoloys Process for Manufacture of, 110
— Chimney, Self-Supporting, Cathcart Works, Glasgow, 414*
— Construction for Air-Raid Shelters, Models of, 335, 420
— Corrosion. See *Corrosion*
— Fatigue of. See *Fatigue* and *Alternating Stress* under *Tests* (*Materials*)
— Flame-Cut, Suitability for Welding, 521
— Foundry. See *Foundry*
— Frame Building, Settlement Analysis of, 403*
— Framework, Callender-Hamilton Unit-Construction Aeroplane Shed, 727*
— Furnaces. See *Furnaces*
— for High Temperatures, National Physical Laboratory Investigations on, 237
— Liquid, Determination of Temperature, 553
— Manufacture. See also *Furnaces*; *Metallurgy*
— Melting Plant, Development of, 520
— — Shops, American and European, Electric Furnaces in, 539
— Microstructure of. See *Microphotographs*; *Metallography*
— Non-Destructive Examination of, 141, 651
— Oxygen in, Determination of, 238*
— Plain Carbon, Specific Heat-Temperature Curves of, 580
— Plates, Prices. See *Metal-Price Diagrams*
— Rails. See *Rails*; *Metal-Price Diagrams*
— Rolling Mills. See *Rolling Mills*
— Ropes. See *Wire Ropes*
— Ruff Fluidity Test for, 548, 581
— Scaling of, Influence of Furnace Atmosphere on, 570
— Sheets, Galvanised Corrugated, Specification, 320
— — Piling, Hoesch, for Cofferdam, Waterloo Bridge, 588*
— for Shipbuilding, 85
— Silicon, Use in Balanced-Cantilever Bridge over Connecticut River, 553*, 676
— Specific Heat-Temperature Curves of, 580
— Stainless, for Post-Office Stay Wires, 55
— Stress Distribution in. See *Stress*; *Tests* (*Materials*)
— Strip, Continuous Rolling Mills for, (American RollingMill Company), 580
— — National Physical Laboratory Investigations on, 63
— Structural, Working Stresses in, 386
— Surfaces, Protection by Sprayed-Zinc Coatings, 657*
— Temperatures of Transformation of, 238
— Tests of. See *Tests* (*Materials*)
— Thermal Properties of, National Physical Laboratory Investigations on, 594
— Tube Plant, Corby, Electrical Equipment of, 469*
— — Weldless Plant, Chesterfield Tube Co., Ltd., 713
— Wire for Hume Concussional-Spun Concrete Pipes, 558*
Steering Gear for Ships, 87
— — See also *Motor-Car Details*
Stein & Atkinson, Ltd., 5-ton Rotary Furnace, 10*; 40-ton Annealing Furnace for Steel Castings, 434*
Stephen, A., & Sons, Ltd., S.S. "Canton," 458*
Stereo-Comparator (Cambridge Instrument Co., Ltd.), 320
Steriliser, Soil (Electro-Horticultural Equipment Co., Ltd.), 95*
Stevens, W. C., on Machinery and Equipment for Bending Wood, 389
Stewarts & Lloyds, Ltd., Electrical Equipment of Corby Steel-Tube Plant, 469*; High-Pressure Steam Pipes, La Mont Boiler, Cathcart Works, 505*
Stills, Coal-Tar, Corrosion of, Report, 333, 396
Stockholm, Refuse-Disposal Plant, 448
Stoker, Mechanical Babcock-Erith, Drag-Suction Dredger "Fu-Shing," 579*
— — Chain-Grate, for La Mont Boiler, 414*
— — Operation in American Locomotives, 136
Stone-Crushing and Screening Plant, St. Austell, Cornwall, 596*
— Freezing of, Experiments on, 291
Stone, H. V., & Co., Welding Equipment for Erection of Klonne Gas-Holder, 131*

Stone, J., & Co., Cooking, Heating and Ventilating System, London-Harwich Train, 456*
Stoney Stanton, Leicester, Concrete-Pipe Works (J. Ellis & Sons, Ltd.), 557*
Stop Valves. See *Valves*
Storage Battery. See *Accumulator* under *Electric*
— of Liquids, Code for Design of Reinforced-Concrete Structures for, 289
— Silos for Grain, 572
Stothert & Pitt, Ltd., Concrete Materials Weighing Hopper, 372*
Stourport Power Station, 48, 78
Stoves, Cooking, Swedish, 682
— Domestic, German, Design of, 683*
— Heating, for Burning Lignite, 653*
Straightedges, Cast-Iron, Draft Specification, 114
— Toolmakers, Draft Specification for, 448
Straightway Gate-Type Valve, 625
Strain. See *Stress*
Streams, Bed Traction and Depth of, 166
Street Cleansing and Refuse Collection, Cost of, Report, 483
— Lighting Investigations at National Physical Laboratory, 726
— — Power Supply for, 709
— See also *Roads*
Strength of Materials, Molecular Basis of, 593
— — See also *Stress* and *Tests* (*Materials*)
Stress, Alternating and Combined. See *Tests* (*Materials*)
— in Built-Up and Reinforced Tubes, 413*, 467*
— in Clay Foundation, 404*
— Diagram for Gasholder Tank, Sheffield, 324*
— Fluctuating, and Machine Design, 145*
— Impact, in Machine Parts, Absorption of, 144*
— Internal, in Castings, Relief of, 230*
— in Propeller-Shaft Brackets, 696*
— in Reinforced-Concrete Piles During Driving, Report, 87
— Repetitious. See *Alternating Stress* under *Tests* (*Materials*)
— in Self-Supporting Horizontal Pipe Line, 466
— in Ships, Experiments on, 6
— in Steel, and Crystalline Structure Changes in, 62
— in Taper-Bore Thick End-Plate, 171*
— Tensile in Bearing Metal Cast on a Strip, 235*, 295*. See LETTER, 299*. See 611*
— in Welded Pipes with Internal Pressure and End Thrust, 289*, 310
— Working, in Structural Steel, 386
Strikes. See *Labour; Labour Notes*
Strip Mill, American, Development of, D. E. Robertson, 520
— Mining of Bituminous Coal in the United States, 227*
— Steel, Continuous Rolling Mills for, 580
— — National Physical Laboratory Investigations on, 63
Structural Engineers, Institution of, Report on Structural Problems in Air-Raid Precaution Work, 569; *Yorkshire Branch*, Plastics, by C. D. Phillipps, 655
— Steel, Working Stresses in, 386
— Steelwork. See also *Steel*
Structure-Borne Noise, Reduction by Vibration-Attenuating Supports, 124, 198*
— Deterioration in Sea Water, Report, 359
— Engineering, Settlement Analysis of, 310, 463*
— Ferro-Concrete. See *Ferro-Concrete*
— Hydraulic (Review), 254
— and Materials, Vol. II (Review), 356
— Settlement of, Investigations on, 105
— Statically-Indeterminate, Theory of (Review), 167
— Thin Sheet-Metal, National Physical Laboratory Investigations on, 151
Stuart, Herbert Akroyd, Award, Institute of Marine Engineers, 686
Stüssel, Dr., on Junkers Heavy-Oil Aero Engines, 315*. See LETTER, 472
Subdivision of Ships. See *Water-Tight*
Submarine Boats. See *Warships*
Substation, Birmingham, Failure of Transformer in, 597
— Reduction of Noise from Transformers, 521*
— Traction, Ignitron Loading Equipment for (British Thomson-Houston Co., Ltd.), 428*
Suburban Roads, Design and Construction of, 654
Subways, King's Cross Underground Station Reconstruction, 265*, 296*, 386*. See *Erratum*, 444
Suction Dredger. See *Dredger*
Sugar Technology, Imperial Institute of, Cawnpore, India, Experiments on Molasses for Road-Making Material 321
Sulphur, Elimination from Flue Gases, 499
— Fumes, Atmospheric Pollution by, 280
— Melting and Burning Chambers, Contact Sulphuric-Acid Plant, 518*
Sulphuric-Acid Manufacture, 138
— — Plant, Contact (Simon-Carves, Ltd.), 518*
Sulzer Brothers, Ltd., 4,400-b.h.p. Diesel-Electric Locomotive, 100*; 12,500-b.h.p. Twelve-Cylinder Oil Engine, M.S. "Oranje," 418*; 270-b.h.p. Diesel-Electric Railcars, Service Results, 461; Control Gear for Diesel Railcar, 630*
Sumner, L. G., Balanced-Cantilever Bridge over Connecticut River, 553*, 676
Sunderland Forge & Engineering Co., Ltd., 800-kW Turbo-Generators, S.S. "Mauretania" 124
Sunvic Controls, Ltd., Control Switch for Electric Hotplates, 571*
Superchargers, Buchi, for Marine Diesel Engines, 247
— for De Havilland Gypsy-Twelve Aero Engine, 48*
Superheater Co., Ltd., MeLeSco Superheater for La Mont Boiler, 414*
Supervising Electrical Engineers, Association of, Presidential Address, by J. R. Beard, on Design of Coal-Fired Power Stations, 690
Supports for Horizontal Pipe-Line Span, 466*
Surfaces, Bearing, Graphoid Layer on, 91*
— Condensers. See *Condensers*
— Steel, Gas-Cut, Welding of, Investigations on, 321
Survey, Coal, Work of, 765
Surveying, Aerial, Stereo-Comparator for (Cambridge Instrument Co., Ltd.), 320
— Instruments, Ancient, 541*
— Tapes, National Physical Laboratory Tests of 267
Suspension Spans, Thousand Islands Bridge over St. Lawrence, 377*
Sussex, Chilgrove, Rainfall and Water Level at, 714
Sutherland, E. G., on Constitution of Aluminium-Zinc Alloys, 567
Swallow, J. C., on Measurement of Gas Temperatures in Chemical Industry, 684
"Swan," Lake Motor Launch, 72
Swan, Hunter, & Wigham Richardson, Ltd., Launch of H.M. Destroyer "Janus," 598; Trials of H.M. Destroyer "Somali," 734
Swansea University College, Prospectuses, 220
Swedish Cement Association, Symposium on Chemistry of Cements, 195
— Cooking Stoves, 682
— Railways, Electrification of, 160
— Water Power Association, Power Questions of the Day, by E. Upmark, 707; The Licence Acts, by T. Hedin, 767; General Points of View in Transmission Problems, by G. Löfgren, 767
Swift, Prof. H. W., on Functions of Cutting Fluids, 659*
Switches, Motor Starting. See *Motors, Electric*
Switchgear, Accidents to, 708
— 'Bus-Bar-Zone Protective Systems (A. Reyrolle & Co., Ltd.), 329*
— Circuit-Breakers, Oil, Spring-Closing (General Electric Co., Ltd.), 406*
— for Coal Mines, 730
— Contactors, Specification, 321
— Control Switch for Electric Hotplates (Sunvic Controls, Ltd.), 571*
— Corby Steel-Tube Plant, 469*
Switchgear & Cowans, Ltd., Non-Automatic Oil Switches, 171*. See *Erratum*, 185*; Single-Phase Switch Fuse, 402*
— Diagram Control Board for Power Stations (A. Reyrolle & Co., Ltd.), 328*
— Hams Hall Transformer and Switching Station, 78
— Ring-Main Equipment, Vertical Plugging (British Thomson-Houston Co., Ltd.), 210*
— Short-Circuit Testing Authorities, Association of, 511
— Switch, Cam-Operated, for Machine Tools (Brookhirst Switchgear, Ltd.), 749*
— — "Isofuse" (Brookhirst Switchgear, Ltd.), 662*
— — Oil, Non-Automatic (Switchgear & Cowans, Ltd.), 171*. See *Erratum*, 185
— — Sockets, Shutter Pattern (General Electric Co., Ltd.), 277
— — Unit, Single-Phase, with High Rupturing-Capacity Fuse (Switchgear & Cowans, Ltd.), 402*
Switzerland, Biel-Meinisberg Railway, Electric Railcar with "Simplex" Bogie, 188*
— Federal Hydraulic Laboratory, Zürich, 3*, 149*
Sydney, Australia, Electricity Supply in, 133
Sykes, Dr. C., on Specific Heat-Temperature Curves of Iron and Steels, 580
Sylvester, W., Ltd., Steel Safety Prop, 625
Synthetic Resins, Radiological Examination of, 624
— — Reinforcement of Wood with, 655
— Rubber, Production of, 564
Syria and the Lebanon, Economic Conditions in, Report, 604
Systems, Shop. See *Works Management*
Szlumper, G. S., on Transport, Comfort and Speed, 480

T.

TACHOTYPE High-Speed Writing Machine, 675
Tailrace Model, Etzel Hydro-Electric Plant, 149*
Tait, W. H., on High-Speed Repeated-Impact Testing Machine, 611*. See 235*, 295*. See LETTER, 299*
Tanks, Butane, Steel, Protection by Sprayed-Zinc Coating, 657*
— Experiments, Seaplane Models, 252
— — on Steam Drifters, 599*, 662*
— Experimental, Froude Laboratory, Work of, 338*, 370
— — Increased Use of, 84
— — Rolling Experiments in, 6
— — Work of, 575
— — See also *Ship Resistance*
— for Flocculation Processes (Unifloc Reagents, Ltd.), 687*
— Liquid-Culture (Electro - Horticultural Equipment Co., Ltd.), 96*
— Mild-Steel, for Four-Lift Gasholder, Sheffield, 323*
— Ships, Motor. See *Motorships*
— Steamers. See *Steamers*
— Storage, Hot-Water, Everdur-Alloy (A. McAra), 160
— — and Pressure, Federal Hydraulic Laboratory, Zurich, 3*, 149*
Tanvea, Hydraulic Cyder Press, 26
Tapes, Surveying, National Physical Laboratory Tests of, 267
Taper-Bore Thick End-Plate, Strength of, 171*
Tar, Coal, and Its Products, Sampling of, Specification, 341
— Hydrogenation-Cracking of, Fuel Research Board Investigation, 464
— Road, Experiments with, 685
— Stills, Corrosion of, Report, 333, 396
— Use on Roads, 435
Tariffs and Costs in Electricity Supply (Review), 640
Tarnishing of Silver, Prevention of, 567
Taylor, A. A., on Influence of Furnace Atmosphere on Scaling of Steel, 570
Taylor Brothers (Sandiacre), Ltd., Trent Valley Railway Junction Reconstruction, 225*
Taylor, Dr. D., on Pressure of Mixture of Saturated Steam and Air, 674*
Taylor, H. G., Driving Tests of Copper Earthing Electrodes, 456
Taylor, Dr. J. L., on Strength of Propeller-shaft Brackets, 695*
Teaching. See *Education*
Teak, Kiln-Seasoning Treatments on, Report, 52
Tecalemit, Ltd., Multipoint Soft-Grease Lubrication Battery, 227*. See *Addendum*, 272; Positive-Displacement Meter for Motor Fuels, 501*
Technical College and Education. See *Education*
— Literature, Indexing and Abstracting of, 9. See LETTERS, 169, 342
— and Scientific Periodicals, Evaluation of, 707
— Societies. See *Institutions* and PARAGRAPH INDEX
Teeth, Gear. See *Gear*
Telegraphy, Wireless, Aberdeen Broadcasting Station, 332
— — Aerial Navigation, Direction-Finding Investigations, 726
— — National Physical Laboratory Investigation, 711*, 726
— — Royal Air Force, Wireless, Civilian Reserve, 309
— — Suppression of Interference from Trolley 'Buses, 252
— — See also *Radio* and *Electricity* in PARAGRAPH INDEX
Telephony, Wireless, Aberdeen Broadcasting Station, 332
— — Anglo-French Ultra-Short Wave Radio-Telephone Link, 761
— — National Physical Laboratory Investigations, 711*, 726
— — Royal Air Force, Wireless, Civilian Reserve, 309
— — Suppression of Interference from Trolley 'Buses, 252
— — See also *Radio* and *Electricity* in PARAGRAPH INDEX
Telescopes, Astronomical, and Human Vision, 222
Television, Development of, 565
— and Human Vision, 222
Temperature, Gas, Measurement of, Symposium on, 683
— Measurement. See also *Pyrometry*
— Recorder for 40-ton Annealing Furnace (Foster Instrument Co.), 434
— Scale, International, National Physical Laboratory Investigations on, 553
Tenders, 12, 42, 72, 102, 132, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 560, 588, 616, 646, 676, 704, 734
Tensile Tests. See *Tests* (*Materials*)
Ternary Alloys. See *Alloys* under *Metallurgy*
Terrestrial Magnetism. See *Magnetism*
Terzagh, K. von, Work on Settlement of Structures on Clay, 403*
Tests, Aeronautical. See *Aeronautics*.
— Air Compressor, 1,000-b.h.p. Vee-Belt Drive for (J. B. Lindley (1931), Ltd.), 140*. See *Addendum*, 191
— of Air-Metering Nozzles, 196
— for Cements, American, 360
— Corrosion. See *Corrosion*
— Crucible Swelling, for Coal, Specification, 473
— Cutting Fluid, 660
— 90-h.p. Direct-Injection Six-Cylinder Oil Engine, 147*
— Driving of Copper Earthing Electrodes, 456
— Evaporation, Coal-Slurry Filter Cake, 688
— and Examination of Welded Drums, Schedule of, 256
— Fatigue. See *Tests* (*Materials*)
— Fire, S.S. "Nantasket," 116
— 250-b.h.p. Four-Cylinder Two-Stroke Super-scavenge Diesel Engine, 10*
— of Hume Concussional-Spun Concrete Pipes, 558*
— 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 694*
— Magnetic. See *Magnetic*
Tests (Materials):
Alternating-Stress Tests at National Physical Laboratory, 62
— — Tests of Riveted Joints, 773
Creep Tests at National Physical Laboratory, 64, 237
— — Steel at 500 deg. C., 146*
Fatigue Tests of Riveted Joints, 773
Hardness Tests, Brinell, Thermoloys Steel Castings, 110
Impact Tests, High-Duty Cast Irons, 742, 745*
Magnetic Tests. See *Magnetic*
Materials, Strength of, on Molecular Basis, 593
Non-Destructive Electrical, X-Ray, Gamma-Ray, Magnetic, and Acoustic Methods of Testing, 141, 652
Notched-Bar Impact Tests. See *Impact Tests* (above)
Shearing Test, Bonded Metal and Rubber, 391*
Stresses in Materials and Structures. See *Stress*
Tensile and Creep Tests, Steel at 500 deg. C., 146*
— Tests, Bonded Metal and Rubber, 391*
— — Thermoloys Steel Castings, 110
Test, Hydraulic, Welded Pipes with Closed Ends, 289*, 310
— Mechanical, High-Duty Cast Irons, 742, 745*
Testing Machine, Calibration of, at National Physical Laboratory, 198
— — Repeated-Impact High-Speed, 611*. See 235*, 295*. See LETTER, 299*
Test, Model, of Centrifugal Pumps and Fans, 243*, 252
— Morgan Rotary-Retort Low-Temperature Carbonisation Plant, 113*
— Motor Car with Salerni Hydro-Kinetic Transmitter, 272
— Priming, of Fire-Fighting Pump, 528
— of Railway Brakes, 282
— of Rib for Unit-Construction Aeroplane Shed, 728*
— Ruff Fluidity, for Steel, 548, 581
— Strength of Ships' Plates, 152*
— Tank and Sea, of Steam Drifters, 599*, 662*
Test of Thompson-La Mont Water-Tube Boiler, 654
Testing Apparatus, Four-Ball Top, for Lubricating Oil, 107
— — Heat-Transmission, for Insulating Materials, 595*
— — for Lathe Leadscrews, 633*
— — Pitch, for Tapered Screw Gauges, 266*
— Electro-Magnetic, of Steel Plates, 141
— Laboratory. See *Laboratory* and *National Physical*
— Machines, Calibration of, at National Physical Laboratory, 198
— — for Driving Belts, 108*
— — Journal-Bearing, 64*
— — Repeated-Impact High-Speed, 611*. See 235*, 295*. See LETTER, 299*
— — Road Research Laboratory, 380
— — Sand Compression (G. Salter & Co., Ltd.), 214*
— — See also *Tests* (*Materials*)
— Magnetic. See *Magnetic*
— Materials, American Society for, Nomenclature in Ferrous Metallography, by Prof. A. Sauveur, 281; Pamphlet on Cement, 360
— Non-Destructive Methods of, 141, 651
— of Shipbuilding Materials, Research Applied to, 6
— Specification, of Galvanised Iron Wire, Bearing of Corrosion on, 27, 54*
— Switchgear, Organisation of, 511
— See also *Tests* (*Materials*); *Trials*
Text Books. See LITERATURE INDEX
Thames, River, London, Waterloo Bridge over, Reconstruction of, 587*; Development of South Bank of, 593; Blackwall Tunnel under, Duplication of, 680
Therapeutic Radiological Treatment, Measurement of Dosage in, 623*
Thermal Efficiency of American Power Stations, 173, 452
— Properties of Engineering Materials, National Physical Laboratory Investigations on, 594*
— Treatment, Metals. See *Heat Treatment* under *Metallurgy*
Thermeter Recording Gas Calorimeter, 345*
Thermo-Couple. See under *Electric* and *Pyrometer*
Thermodynamics and Heat (Review), 166
Thermoloys, Ltd., Thermoloys Process for Manufacture of Steel Castings, 110
"Thetis," H.M. Submarine, Launch of, 58
Thickness-Measuring Instrument, Electrical, for Metal Walls, 715*
"Thistle," H.M. Submarine, Launch of, 535
Thomas, F. P., on Fatigue Tests of Riveted Joints, 773
Thomas, Dr. G. J., on Tarnishing of Silver, 567; on Oxidation-Resistance in Copper Alloys, 567
Thomas, R., & Co., Ltd., Hot-Metal Practice in Fixed Open-Hearth Furnaces, 24
Thomas, Dr. W. N., Experiments on Freezing of Building Materials, 291
Thompson, Prof. F. C., on Tensile Stresses in a Bearing Metal, 235*, 295*. See LETTER, 299*. See 611*
Thompson, J., Water Tube Boilers, Ltd., La Mont Boiler Installation, 414*, 504*; Tests, 654
Thompson Manufacturing Co., Self-Supporting Horizontal Pipe-Line Span, 466*
Thomson, D. H., on Rainfall and Water Level at Chilgrove, Sussex, 714
Thornton, A. G., Ltd., "Trig-Angle" Adjustable Set Square, 365
Thornton, B. M., on Measurement of Thickness of Metal Walls, 715*
Thornton, Professor W. M., on Measurement of Thickness of Metal Walls, 715*
Thornycroft, J. I., & Co., Ltd., Diesel-Engined Picket Boat for Royal Navy, 141*; Refuse-Collecting Vehicle with Compressing Gear, 642*
Thorp, T., & Co., Ltd., Thermostatically-Controlled Gas Burner, 613*
Thorson, A. W., Blast-Furnace Gas-Fired Boilers, Delray Power Station, 207*
Thousand Islands Bridge Over St. Lawrence River, 377*
Threads, Screw. See *Screw*
Three Mills Distillery, Bromley-by-Bow, Tide Mills at, 445*
Threshing Machine on Pneumatic Tyres (Marshall, Sons & Co. (Successors), Ltd.), 68*
— — Power Supply for, 499
Thring, M. W., on Measurement of Producer-Gas Temperature, 684
Throttle Valve. See *Valve*
Thrustor, Electro-Hydraulic, for Selective Conveyor Installation, 25*
Thum, Prof. A., on Research on Materials and Modern Design, 143*. See 80
Thury, Dr. R., the Late, 225
Tidal Estuaries, Flow Problems in, 61, 165, 223
Tide Mills in Great Britain, 445*
Tie-Backs for Erection of Balanced-Cantilever Bridge over Connecticut River, 555*, 676
Timber, Forest Products Research Board's Investigation on, 52, 292, 310, 389, 463
— in Sea Water, Deterioration of, 359
— Its Structure and Properties (Review), 254
Timbering of Excavations, and Construction of Main Sewers (Review), 168
Time and Motion Study (Review), 92
Tin Alloys. See *Alloys* under *Metallurgy*
— Research and Development Council, International, High-Speed Repeated-Impact Testing Machine, 611*. See 235*, 295*. See LETTER, 299*
— and Tin-Plate Prices. See *Metal-Price Diagrams*
Tochon, G., the Late, 645
Todd, Dr. F. H., on Vibration in Ships, 345*, 375*. See 283; on Steam Drifters; Tank and Sea Tests, 599*, 662*
Toenges, A. L., on Strip Mining of Bituminous Coal, 227*
Tolerances in Machine Work. See *Gauges; Gauging*
To-morrow's War (Review), 770
Tookey, W. A., on Works of Sir D. Clerk, 730
Tools, Machine. See *Machine Tools*

Tools, Pneumatic. See *Machine Tools*
Toothed Gear. See *Gear ; Gearing ; Marine Propulsion*
Top, Four-Ball, for Testing Lubricants, 107
Topping Plant for Electric Power Stations, 135, 174, 451
Toronto University Engineering Society, Year Book, 277
Torpedo Boats and Destroyers. See *Warships*
Torque Converter for Motor Cars, 268*, 281, 482
— — Voith-Sinclair, for Railcars, 622, 632
— in High-Speed Shafts, Measurement of, 69*
— Meters. See *Torsion Meters*
Torrington Co., Needle Bearing, 132
Torsiographs for Aircraft, 286*
Torsion of Built-up and Reinforced Tubes, 412*, 467*
— Meter, Induction, for Air-Screw Testing, 71*
Torsional Vibration in Aeroplane Engines, 257*, 285*
Totaliser and Weigher, Visible, Industrial (W. & T. Avery, Ltd.), 327*
Tower, Steel, for Winding Plant, Fushun-Ryuho Colliery, Mukden, 671*
Towns and Factories, Garages in Relation to (Review), 168
— Gas. See *Gas*
— Planning, Ministry of Health Report, 222
Trackless Trolley System, Road Traction. See *Trolley 'Bus*
Traction, Electric. See *Railways ; Trolley 'Bus*
Tractor, Agricultural, 12-h.p. Diesel, for Vine Cultivation (A. Olier), 26
— — John Deere Model "L" (J. Olding & Co., Ltd.), 681, 732*
— — 30-h.p. Minneapolis Moline, 681
— — Oliver Rowcrop "70" (J. Wallace & Son, Ltd.), 682
— — 14-h.p. Paraffin-Driven (International Harvester Co. of Great Britain, Ltd.), 31*
— — 16-b.h.p. Petrol-Driven (Allis-Chalmers Manufacturing Co.), 96
— — 8½-h.p. Petrol-Driven (Deere & Co., Ltd.), 681, 732*
— Binder (Lanz Tractor Co., Ltd.), 96
— Forestry, Four-Wheel Drive (Universal Power Drives, Ltd.), 66*
— — Producer-Gas Driven (Latil Industrial Vehicles, Ltd.), 66*
Trade Disputes. See *Labour ; Labour Notes*
— Economic Conditions in Iran, Report, 156
— — Conditions in Iraq, Report, 250
— — Conditions in Syria and the Lebanon, 604
— Exhibition. See *Exhibition*
— Export, and Rearmament Programme, Maintenance of Balance Between, 708
— Import and Export of Grain, 571
— — Trade of India, 1937-38, Survey of, 272
— Marks, Patents and Designs (Review), 455
— Market Control in Aluminium Industry (Review), 182
— Mineral, of Yugoslavia, 685
— Modern Business Problems (Review), 209
— Motor-Car Imports and Exports, 337
— — Car, Position of, 481
— Overseas, and British Shipping, 679
— — of United Kingdom, 1937, Nationality of Carrying Ships, 679
— and Shipping, British, 511
— Schools and Training of Craftsmen, 98
— Unions. See *Labour ; Labour Notes*
Traffic Counter, Automatic, 613*
— Passenger, London Passenger Transport Board's Report, 564
— Road, Counting System, 58
— and Roads, Problems of, 710
Trains, "Flying Scotsman," London and North Eastern Railway, 41*
— Freight, American, Weight and Length, 136
— London and Harwich Service, 456*
— Multiple-Unit, in France, 756
— Relation of Comfort and Speed in, 480
— Running Times, Calculation of, 282
— See also *Railway*
Training, River, in Connection with Bridges, 649
— Works, Early, on Mississippi River, 651
— See *Education*
Transatlantic Liners, Oranje Line Service, 539
— — Standard, 163
Transformer Cores, Small, Magnetic Testing of, 573*
— Failure owing to Dirt, 597
— Hams Hall Transformer and Switching Station, 78
— Noise from, Investigations on, 521*
— Stampings, Incremental Magnetic Measurements of, 407*
— Substation, Reduction of Structure-Borne Noise from, 199
— Transients in, Investigations on, 251
— Voltage Regulator (Metropolitan-Vickers Electric Co., Ltd.), 625
Transmission, Gear. See *Gear; Gearing ; Marine Propulsion ; Motor-Car Details*
— of Power. See *Marine Propulsion ; Power Transmission*
— of Steam, Long-Distance, 279
Transport, Aerial. See *Aeronautics*
— Correspondence Course, 570
Transport Engineering, Ltd., A.R.P. Decontamination Equipment, 643* ; Compression Refuse-Collection Vehicle, 643
— Institute of, Presidential Address, by G. S. Szlumper, on Transport, Comfort and Speed, 480 ; Transporting the Grain Harvests of the World, by C. Bentham, 571 ; Cross-Channel Services from Passengers' Viewpoint, by A. C. Hardy, 598
— and International Crisis, 591
— Ministry of, Report on Castlecary Railway Accident, 16 ; Report on British Railway Accidents, 1937, 159 ; Report on Ruthergien Railway Accident, 256 ; Footbridge over Western Avenue, Greenford, 342* ; Work of Roads Department of, 379, 435* ; Report on Charing Cross Underground Railway Accident, 396 ; Report on Experimental Work on Roads, 684 ; Regulation of Railway Charges, 711
— Motor. See *Road ; Motor*
— Railway. See *Railway*
— Relation of Comfort and Speed in, 480
— Reorganisation in Northern Ireland, Report, 651
— Road. See *Road ; Motor*
Transport Vehicles, Municipal, Garages for, 750
Transportation of Sand in Pipe Lines, Investigations on, 158
Transporting Grain Harvests of World, 571
Transvaal Mines, "Scrapehauler" for Loading Rock from Mine Dumps (Holman Bros., Ltd.), 255*
Transverse Bulkheads. See *Water-Tight Subdivision*
Trap, Steam. See *Steam Trap*
Traulier Forestry Tractor, 66*
Travelling Crane. See *Crane*
Tray Conveyor, Mount Pleasant Sorting Office, London, 524*
Treforest School of Mines, Calendar, 374
— Trading Estate, South Wales, Steam and Water Supply at, 97
Trent Valley Railway Junction, Reconstruction, 225*
Trial, Dredging, Drag-Suction Dredger "Fu-Shing," 640
— Steam Drifters "Ocean Reward," "Ocean Rambler" and "Ocean Vim," 599*, 662*
— See also *Tests*
"Trident," H.M. Submarine, Launch of, 705
Trig-Angle Adjustable Set-Square, 365
Triple-Expansion Engines. See *Engines, Steam*
Trolley 'Buses, Suppression of Radio Interference from, 252
Tropics, Health Conditions in, Work on, 132
Truck, 15-cwt. Industrial, Petrol-Driven (James Cycle Co., Ltd.), 292*
— Railway. See *Wagons*
— See also *Bogie*
Tubes, Built-Up and Reinforced, Torsion of, 412*, 467*
— Nests of, Resistance of Flow Through, 605*, 665*, 723*
— Plant, Steel, Corby, Electrical Equipment of, 469*
— Railways. See *Underground Railways*
— Weldless, Steel, Plant for Manufacture of, Chesterfield Tube Co., Ltd., 713
— Wells. See *Wells*
— See also *Pipes*
Tunnel as Air-Raid Shelter, 572
— Blackwall, under River Thames, Duplication of, 680
— King's Cross Underground Station Reconstruction, 265*, 296*, 386*. See *Erratum*, 444
Tunnelling, Ancient Methods of, 542
Turbine, Hydraulic, 115,000-h.p. Boulder Dam Power House, 59*, 179*, 239*, 549*, 608*, 669*, 693*
— — 24,000-kW Kaplan, Deichow Hydro-Electric Plant, 36*
— — in Swedish Power Stations, 767
— — See also *Power Plant*
— Pumps. See *Pumps, Centrifugal*
— Steam, Cathcart Works, G. & J. Weir, Ltd., 504*
— — 50,000-kW, Clarence Dock Power Station, 483
— — Deflection of Rotors of, 181*
— — High Pressures and Temperatures in, 451. See LETTER, 505
— — Marine, Geared. See *Marine Propulsion*
— — Use of Cast Iron in, 743
— — Vertical, Geared (G. & J. Weir, Ltd.), 153*
— — See also *Turbo-Generators*
— Steamers. See *Steamers ; Warships*
"Turbinia," S.S., History of, 680
Turbo-Generators in British Power Stations, 510
— — Cathcart Works, G. & J. Weir, Ltd., 504*
— — 50,000-kW, Clarence Dock Power Station, 483
— — Developments in, 80, 135
— — 800-kW, "Mauretania," 123
— — for Power Stations, Size of, 690
— — 2,200-kW, S.S. "Queen Elizabeth," 384
Turbulence in Fluid Flow, Investigations on, 550
Turner, A., on End-Gauge Comparator of High Sensitivity, 183*
Turner, S., Ltd., 2-3 b.h.p. Single-Cylinder Oil Engine, 599*
Turning. See *Machine Tools*
Twisteel Reinforcement, Ltd., Reinforced-Concrete Air-Raid Shelter, 529
Tyres, Pneumatic, Behaviour on Roads, 592
— — Developments in, 563

U.

UNDERFRAME, Welded, for London Underground Railway Carriage, 51*
Underground Railways, London, New Rolling Stock, 51* ; Waterloo Tube Accident, Report, 71 ; Reconstruction of King's Cross Station, 265*, 296*, 386*. See *Erratum*, 444 ; Report on Accident at Charing Cross, 396 ; Aldgate East Station Reconstruction, 531* ; London Passenger Transport Board's Report, 564
— Strata in Mines, Safety in Mines Research Board Investigations, 719
— Water Supplies, Protection for, 625
Unifloc Reagents, Ltd., Flocculation Plant, 687*
Union-Castle Mail Steamship Co., Ltd., Reconditioned M.S. "Carnarvon Castle," 88* ; M.S. "Warwick Castle," 428 ; M.S. "Durban Castle," 744
— Trade. See *Labour ; Labour Notes*
Unit Superheater & Pipe Line Co., Ltd., Steam Pipe Line, Treforest Trading Estate, 97
United Filters & Engineering Co., Ltd., Water-Works, Treforest Trading Estate, 97
United Insulator Co., Ltd., Exhibition of Calit, 598
— Kingdom, Overseas Trade of, 1937, Nationality of Carrying Ships, 679
— — See also *Great Britain ; England ; Anglo-* etc.
— Provinces in India, Electricity Supply Scheme for Irrigation Pumping, 768*
— States, Aircraft Production Methods in, 689
— — Bureau of Mines, Report on Strip Mining of Bituminous Coal, 227* ; Circular on Smoke Abatement, 280 ; Annual Report, 403 ; Report on Dewatering and Drying of Coal, 460
— — Bureau of Reclamation, Reports on Model Studies of Spillways, Penstocks and Outlet Works at Boulder Dam, 15 ; Boulder Dam Power House, 59* 179*, 239*, 549*, 608*, 669*, 693*
— — Bureau of Roads, Highway-Traffic Counting System, 183
— — Bureau of Standards, Vibrograph for Fresh Concrete, 232*
— — and Canada, New International Bridges between, 377*
— — Civil Aeronautics Act, 1938, 350
— — Coal Utilisation and Distribution in, 424
— — Developments in Brick Roads in, 233
— — Die-Casting Equipment and Practice in, 293*, 411*
— — Locomotive Operation in, 136
— — Merchant Ships, Safety Regulations for, 116
— — Mineral Resources, Conservation of, 403
— — Naval Engineering in, History of, 738
— — Naval Research Laboratory, Electro-Magnetic Testing of Steel Plates, 141
— — Navy. See *United States* under *Warships*
— — New England, Rainfall and Run-Off in, 45
— — Power Stations, Development of, 173*, 451
— — Railways, Comfort and Speed in, 480
— — Railways. See also *Railways*
— — Road Conferences in, 663
— — Rolling-Mill Practice in, 580
— — Smoke Abatement Measures in, 280
— — Soil Erosion and River Control in, 579, 638, 754
— — Specifications for Cement, 360
— — Steelworks, Electric-Furnace Practice, 539
United States Tool Co., Inc., Multi-Purpose Milling Machine, 576*
— — Uniform Building Code for, 385. See *Addendum*, 503
— — See also *America*
Universal Power Drives, Ltd., Four-Wheel Drive Forestry Tractor, 66*
University, Birmingham, Investigations on Incremental Magnetic Measurements, 406*
— of California, Investigation on Transportation of Sand in Pipe Lines, 158
— College, Cardiff, Experiments on Freezing of Building Materials, 291
— — London, Faculty of Engineering Prospectus, 71 ; Lectures on Geology, 506 ; Calendar, 570
— Hokkaido Imperial, Calendar, 256
— Illinois, Smoke, Dust and Air Pollution, by D. R. Mitchell, 280 ; Investigation on Pressure Losses in Air Ducts, 302 ; Lectures on Coal Utilisation, 424 ; Annual Conference on Highway Engineering, 664 ; Experiments on Friction of Railway Brake Shoes at High Speed and High Pressure, 719 ; Fatigue Tests of Riveted Joints, by W. M. Wilson and F. P. Thomas, 773
— Leeds, Gas Researches at, 560, 602
— of London, B.Sc. (Eng.), Examinations, 137
— Melbourne, Engineering School, Rebuilding of, 223
— Sheffield, Sir Robert Hadfield Metallurgical Laboratories, 362* ; Lectures on Electric Traction, 444
— Toronto, Engineering Society, Year Book, 277
— See also *Education*
Upmark, E., on Water Power in Sweden, 767
Uptake, Boiler, Model Tests of, 314*

V.

VACUUM Brake. See *Brake*
— Fusion Method for Determination of Oxygen in Steel, 238*
— Pump. See *Pump*
Valve, Butterfly, 14-ft. Boulder Dam Power House, 59*, 179*, 239*
— By-Pass, for Steam Traps (H. Richter), 604*
— Dumping, Lister, Drag-Suction Dredger "Fu-Shing," 495*, 639*
— Expansion, Automatic, for Refrigeration Plant (British Thermostat Co., Ltd.), 311*
— Gate-Type "Straightway" (Saunders Valve Co., Ltd.), 625
— Outlet, Submerged, at Burrator Reservoir, 114
— Parallel-Plug, Glandless Lubricated (Newman, Hender & Co., Ltd.), 155
— Stop, Controlled-Ball Bowler (Newman, Hender & Co., Ltd.), 155*
— — and Safety, Boilers, S.S. "Mauretania," 123. See *Addendum*, 218
— and Valve Gear. See also *Engines*
Vanadium Catalyst, Use in Sulphuric-Acid Manufacture, 518*
Vaposcope Indicator for Steam Traps, 691*
Variable-Speed Gear. See *Gear ; Motor-Car Details*
Vauxhall Motor Car, Design of 14-h.p. Engine, 482
Velometer Air-Flow Meter, 625
Ventilating, Air Conditioning and Heating, Fundamentals (Review), 167
Ventilation and Heating of Buildings, 691
Venturi Meter, Federal Hydraulic Laboratory, Zürich, 4*
Vermorel Agricultural Powder-Dusting Apparatus, 26*
Vessels, Pressure, Welded, British Corporation Register of Shipping Rules for, 189
— — Welded, National Physical Laboratory Investigations on, 64, 238
Viaduct. See *Bridges*
Vibration in Aircraft, Investigations of, 256*, 283, 285*
— Attenuating Supports, Reduction of Structure-Borne Noise by, 124, 198*
— Bending, of Diesel Engine Crankshaft, 6, 21*
— of Buildings, Records by Moving-Coil Vibrometer, 253, 263*
— in Fresh Concrete, Apparatus for Measurement of, 232*
— Mechanical, Resonance in Relation to, 282
— in Rifle Barrels, 45
— in Ships, Causes and Cures, 283, 345*, 375*
— Simple, Introduction to Study of (Review), 541
Vibration of Vertical Winding Ropes, 461*
Vibratory Earth-Consolidating Machine (H. Fisch), 562*
Vibrographs for Aircraft, 285*
— for Measurement of Vibration in Fresh Concrete, 232*
Vibrometer, Moving-Coil, 253, 263*
Vickers-Armstrongs Ltd., Lake Motor Launch "Swan," 72 ; Vickers-Wellesley Aeroplane, Record Flight by, 77, 565 ; Completion of Argentine Destroyer "Entre Rios," 392, 455 ; Launch of H.M. Submarine "Thistle," 535
Vickery, Commdr. H. L., on Safety Regulations for United States Ships, 116
Vienna, Experimental Tank, Work of, 575
— Meeting, World Power Conference. See *World Power Conference*
Vinci, Leonardo da, Writings and Inventions of, 543
Vision in Nature, and Aided by Science, 221
Visser, N. J., on Whirl of Diesel-Engine Crankshafts, 21*. See 6
Vitrain, Investigations on, 485
Vocabulary, Electrotechnical, International, 684
Voith-Sinclair Torque Converter for Railcars, 622, 632
Vonck, C. H. C., High-Speed Writing Machine, 675
Vulcan-Sinclair Hydraulic Coupling for Diesel Railcars, 622, 632
Vulcanisation of Hard Rubber, Investigations in, 564

W.

WACKER Tide Mill, Cornwall, 447*
Wadkin, Ltd., Electro-Hydraulic Cross-Cut Sawing Machine, 398*
Wagemann, H., on Mobilisation of Knowledge, 342. See LETTERS, 9, 169
Wagons, Motor. See *Motor Lorries ; Motor Vehicles : Tractors*
— Railway, for Grain Transport, 571
— Scraper, Four-Wheeled (Atlas Scraper & Engineering Co.), 629*
Wailes, R., on Tide Mills in Great Britain, 445*
Walker Brothers (Wigan), Ltd., Bin-Tipping Refuse Collector, 642*
Wallace, J., & Son, Ltd., Oliver Rowcrop "70" Agricultural Tractor, 682
Wallace, W. K., Trent Valley Railway Junction Reconstruction, 225* ; Apsley Railway Station, 402*
Wallis, Dr. R. P., on Flow Through Nests of Tubes, 605*, 665*, 723*
Wallis & Steevens, 6-ton and 8-ton Oil-Engined Road Rollers, 29*
Wallsend Slipway & Engineering Co., Ltd., Oil-Burning Equipment, S.S. "Mauretania," 122
War Office, Statement on Officers' Emergency Reserve, 250. See 395, 423, 479. See LETTERS, 457, 530
— To-morrow's (Review), 770
Warangel, Hyderabad, Water Supply in 448
Ward, W. A., the Late, 598
Warfare, Naval. See *Warships*
— Use of Aircraft in. See *Aeronautics*
Warships :
Admiralty and Marine Engineering, 425
Argentine Destroyer, "Entre Rios," 392, 455
Aviation, Naval. See *Aeronautics*
H.M. Battle Cruiser "Repulse," Stresses in, 6
— Boom-Defence Vessel "Barlow," Launch of, 277
— — Defence Vessel "Barmouth," Launch of, 475
— — Working Vessel "Moorland," Launch of, 671
— Cruiser "Manchester," Trials of, 191
— Destroyer "Janus," Launch of, 598
— — "Somali," Trials of, 734
— Flotilla Leader "Jervis," Launch of, 335
— — Leader "Kelly," Launch of, 590
— Royal Research M.S. "Research," 226
— Ships, Diesel-Engined Picket Boat for, 141*
— — Introduction of Steam Turbines into, 680
— Submarine "Thetis," Launch of, 58
— — "Thistle," Launch of, 535
— — "Trident," Launch of, 705
Italian Destroyers "Fuciliere" and "Ascaro," Launch of, 478
— Submarines "Barbarigo" and "Emo," Launch of, 199
— Torpedo Boats "Circe" and "Calipso," Launch of, 219
Naval Aeronautics. See *Aeronautics*
— Engineering in United States, History of, 738
— Research, Essential Elements in, 141
Royal Research M.S. "Research," 226
United States Warships, History of Engines, 138
See also *Naval* in PARAGRAPH INDEX
"Warwick Castle," M.S., Re-Engining of, 428
Washing Machine for Electric Meter Parts (Metropolitan-Vickers Electrical Co., Ltd.), 544*. See *Erratum*, 589
Watanabe, Prof. Y., on Theory of Rolling, 6
Watches, Stop, National Physical Laboratory Investigations on, 298
Water Board, Rand, South Africa, Annual Report, 309
— Committee, Central Advisory, Report, 77
— Domestic, Methods of Charging for, 625
— Engineers, Institution of, Presidential Address, by J. F. Haseldine, on Public Water-Supply Problems, 53 ; Vagaries in Run-Off from Catchment Areas in Southern New England, U.S.A., by C. M. Saville, 54 ; Bacteriological and Chemical Control of a Public Water Supply, by A. E. Palmer and H. N. H. Lander, 54 ; Underground Water Supply of County of London, by Dr. S. Buchan, 713 ; A 100 Years' Record of Rainfall and Water Levels in Chalk at Chilgrove, West Sussex, by D. H. Thomson, 713

Water, Examination Laboratories, Metropolitan Water Board, 502*
— Friction. See *Friction; Ship Resistance*
— Gas. See *Gas*
— Heaters. See *Feed Water*
— Level and Rainfall at Chilgrove, Sussex, 714
— Nitrogen Balance of, 691
— Pipes, Earthing Electrical Installations to, Report, 165
— — Sound Insulation Along, Investigations on, 667*
— Power. See *Hydraulics; Power Plant; Power, Water; Turbine, Hydraulic*
— Removal of Iron from, Investigations on, 396
— Supply, Air-Raid Precautions for, 625. See *Erratum*, 656
— — Amount of Lead In, Investigations on, 396
— — London, Statistics and Examination of, 502*
— — Ministry of Health Report, 222
— — Pollution, Prevention of, 114
— — Public, Bacteriological and Chemical Control of, 54
— — Public, Problems in, 53, 113
— — Public, Purification of, 54
— — Rainfall and Run-Off in New England, 54
— — Treforest Trading Estate, South Wales, 97
— — Underground, Control of, 77
— — Underground, for County of London, 713
— — Underground, Protection for, 625
— — in Warangel, Hyderabad, 448
— — See also *Irrigation; Wells*
— Tanks. See *Tanks*
— Tight Subdivision of Ships, United States Regulations, 116
— Tube Boiler. See *Boiler*
— Turbines. See *Turbines, Hydraulic; Power Plant*
— Wastage; Causes, Detection and Prevention 114
— Wheels. See *Turbine, Hydraulic; Power Plant*
Waterloo Bridge, London, Reconstruction of, 587*
— Tube-Railway Accident, Report, 71
Waterways. See *Rivers; Canals*
Waterwheels in Tide Mills, 445*
Waterworks Pumping Plant, Model Tests of, 244*, 252
— See also *Water Supply* and PARAGRAPH INDEX
Watson, Laidlaw & Co., Ltd., Hydro-Extractors, 514*
Wattmeters. See *Electric*
Wave-Making Resistance of Ships. See *Ship Resistance*
— Ocean, Freeboard, and Strength of Ships, 6
Waygood-Otis, Ltd., Escalators, King's Cross Underground Station, 389*. See *Erratum*, 444
Wear, Cylinder, in Motor-Car Engines, Investigations on, 107, 397
Weather. See *Meteorology*
Webb, C. E., on Soft Magnetic Materials, 488*. See 326
Webber, A. F., on Errors in Gas-Temperature Measurement, 684
Wechmann, Dr., on Electric Power Supply for German Railways, 755
Weigher and Totaliser, Visible, Industrial (W. & T. Avery Ltd.), 327*
Weighing Hopper for Concrete Materials (Stothert & Pitt, Ltd.), 372*
Weir, G. & J., Ltd., Vertical Geared Steam Turbine for Auxiliary Drives, 153*; Single-Stage Twin-Crank Air Compressor, 154*; Electrically-Driven Multi-Stage Feed Pump, 154*; 1,000-lb. pressure La Mont Boiler Installation, 414*, 504*; Tests, 654; Auxiliary Machinery for Drag-Suction Dredger "Fu-Shing," 579*, 639
Weir, Lord, on Engineers and Modern Civilisation, 33
— and River Oued Beht, Model of, 149*
Welds, Electric Preheated (Electric Arc Cutting & Welding Co.), 214
Welded Drums, Schedule of Tests and Examination of, 256
— Pipes with Internal Pressure and End Thrust, Stresses in, 289*, 310
— Pressure Vessels, British Corporation Register of Shipping Rules for, 189
— — Vessels, National Physical Laboratory Investigations on, 64, 238
— Waterless-Type Klonne Gasholder, Dagenham, 129*
Welden, E. C., Balanced-Cantilever Bridge over Connecticut River, 553*, 676
Welding Electrodes, Shanks for, Specification, 393
— of Flame-Cut Surfaces, Investigations on, 521
— Institute of, Annual Dinner, 589
— Lincoln Arc-Welding Competition Awards, 369
— Machine, Continuous Spot (British Insulated Cables, Ltd.), 213*
— Operations, Fume Extractor for (Lincoln Electric Co., Ltd.), 159*
— Oxy-Acetylene, Brittleness Caused by, 137. See LETTERS, 187, 360
— — Acetylene, Reconditioning of Worn Metal Surfaces by, 490
— Rods, Coated, Drying Chamber for (Spooner Dryer & Engineering Co., Ltd.), 613*
— in Shipbuilding, Progress of, 86
— Spot, Spot-Light for (Philips Industrial (Philips Lamps), Ltd.), 761
— in United States Ships, Tests for, 117
Well, Borehole in Lower Greensand, De-Mudding of (Le Grand, Sutcliff & Gell, Ltd.), 20
— Pumping Unit, Petrol-Driven (J. Fowler & Co. (Leeds), Ltd.), 96*
Wellman Seamless Steel-Tube Plant, Corby, Electrical Equipment for, 469*
West, A. C., on Pressure of Mixture of Saturated Steam and Air, 674*
— Ham, Abbey Mills Chemical Works, Contact Sulphuric-Acid Plant, 518*
— Hartlepool Institutes and Technical College, Prospectuses, 275
Western Avenue, Greenford, Callender-Hamilton-Unit Construction Footbridge, 342*
Western Pipe & Steel Co., Zinc-Sprayed Steel Butane Tanks, 657*
Westinghouse Brake & Signal Co., Ltd., Greenly Inductive Relay, 459*
Westminster Technical Institute, Prospectus of Evening Classes, 255
Wettingen Hydro-Electric Plant, Model-Turbine Installation, 149*
Wetzel und Schlosshauer, Helios Grease Lubricator, 204*
Whangpoo Conservancy Board, Drag-Suction Dredger "Fu-Shing," 495*, 577*, 638*
— River, Flow Problems of, 61, 165, 223, 241; Control Problems of, 741, 754
Wheels, Gear. See *Gears; Gearing; Marine Propulsion*
— Impact from Motor Vehicles, National Physical Laboratory Investigations on, 151
— Railway, Steel, Effect of Braking on, 719
Wheeler, Prof. R. V., on Destructive Distillation of Coal, 485. See 482
Whirl of Diesel-Engine Crankshafts, Investigations of, 6, 21*
White, Dr. C. M., on Flow through Nests of Tubes, 605*, 665*, 723*
— Metal. See *Alloys* under *Metallurgy*
Whitehouse, Sir G., the Late, 645
Whitmore, E. J., on Graphoid Layer on Bearing Surfaces, 91*
Wicket Gates for 115,000-h.p. Hydraulic Turbine, Boulder Dam Power House, 608*
Wilcox, D. M., on Calculation of Train Running Times, 282
Williams, Sir E., on Work of British Coal Utilisation Research Association, 740
Williams, N., on International Crisis and Engineers, 530. See 250, 395, 423, 479. See LETTER, 457
Wilson Brothers (Leeds), Ltd., 26-in. Circular Saw Bench, 443*
— Gearbox for Diesel Railcars, 631
Wilson, Major W. G., on Control of Diesel Railcars and Transmission Systems, 630*. See 621
Wilson, W. M., on Fatigue Tests of Riveted Joints, 773
Winch, Electric, for Hoisting Suction-Pipe Girder, Drag-Suction Dredger "Fu-Shing," 498, 578*
— — Worm-Geared (Carron Co.), 515*
— Portable, for Use with Tractors (Fishleigh Rotary Cultivator Co., Ltd.), 94*
Wincobank, Four-Lift Spiral-Guided Gasholder, 323*, 357*
Wind Gusts, Effect on Aircraft, Investigations on, 552
— Pressure on Aeroplane Shed, Experiments on, 727
— — on Bridges, National Physical Laboratory Investigations, 552
— — Investigations at National Physical Laboratory, 197, 552
— — on Winding-Plant Tower, Mukden, 671
—Tunnels. See *Aeronautics*
Windermere, Lake, Motor Launch "Swan," 72; Biological Examination of Water, 691
Winding Plant, Tower-Type, Fushun-Ryuho Colliery, Mukden, 671*
— Ropes, Colliery, Investigations on, 719
— — Wire, Vertical Vibration of, 461*
Windows, Heat Flow through, National Physical Laboratory Investigations on, 596
Wingate, Rodridge Hall, Morgan Rotary-Retort Low-Temperature Carbonising Plant at, 113*
Winter, I. A., 115,000-h.p. Turbines, Boulder Dam Power House, 549*, 608*, 669*, 693*
Wire and Bars, Steel, for Concrete Reinforcement, Specification, 72
— Galvanised Iron, Investigations on Corrosion of, 27, 54*
— Ropes, Colliery, Investigations on, 719
— — for Cranes, Specification, 494
— — Tie-Back, for Erection of Balanced-Cantilever Bridge over Connecticut River, 555*, 676
— — Winding, Vertical Vibration of, 461*
— Steel, for Hume Concussional-Spun Ferro-Concrete Pipes, 558*
Wireless Telegraphy. See *Telegraphy; Radio*
— Telephony. See *Telephony; Radio*
Wisconsin Bridge & Iron Co., Blue Water International Bridge, 377*
Witton Works, General Electric Co., 48, 78
Wohler's Tests. See *Alternating Stress* and *Fatigue* under *Tests (Materials)*
Wolverhampton Sewage Works, Enclosed Aerated Filters at, 692
Wood-Bending, Machinery and Equipment for, 389
— Compressed, Durisol Plywood (Société des Etablissements Cadoux) 306
— Dry Rot in, Prevention of, 463
— as Motor Fuel, 288
— Preservation (Review), 209
— Reinforcement with Synthetic Resin, 655
Wood, J. W., on A.T. Burner for Gas, 569
Wood, R. G., on Corrosion of Coal-Tar Stills, 333, 396
— See also *Forest Products*
Woodbridge Tide Mill, 445
Woodward Governor Co., Governing Equipment for 115,000-h.p. Hydraulic Turbines, 693*
Woodworking Machinery. See *Machine Tools*

Works:

Abbey Mills Chemical Works, West Ham, Contact Sulphuric-Acid Plant, 518*
Chemical Works, Safety Rules for, 276
Chesterfield Tube Co., Ltd., Heavy Weldless-Steel Tube Plant at, 713
Gas Works. See *Gas Works*
Hacksaw-Frame and Magnetic-Chuck Shops, J. Neill & Co. (Sheffield), Ltd., 332*
Holloway Works, Fescol, Ltd., 530
Industrial Diseases. See *Labour*
Kilmarnock Works, Glenfield & Kennedy, Ltd., Extensions to, 9*
Longbridge Works, Austin Motor Co., Ltd., 48, 78
Potters Marston Plant for Concrete-Pipe Construction, J. Ellis & Sons, Ltd., 557*
Rugby Works, British Thomson-Houston Co., Ltd., 48, 78
Stewarts and Lloyds, Ltd., Corby Steel-Tube Plant, 469*
Witton Works, General Electric Co., Ltd., 48, 78

Works Engineer, The (Review), 697
— Management, Business Administration for Engineers (Review), 167
— — Modern Business Problems (Review), 209
— — Motion and Time Study (Review), 92
— — The New Management (Review), 284
— — Organisation of American Aircraft Works, 689
— — Principles of Rational Industrial Management (Review), 356
— — The Works Engineer (Review), 697
Workmen. See *Labour*
Workshops and Factories, Home Office Inspector's Report, 193, 195
— Training. See *Education*
— See also *Works; Machine Tools*
World and British Shipping, Statistics of, 679
— Economy, Northern Countries in (Review), 92

World Power Conference:

Sectional Meeting, Vienna:
British Delegates, 190
Inaugural Proceedings, 369
Visits and Excursions, 369

World Power Conference—*continued.*

Section A.—Supply of Energy for Agriculture:
Reports of Proceedings, 453, 498, 607
Hydro-Electric Power Development on River Nile as Stepping Stone to Industrialisation of Egypt, by Dr. A. A. Ahmed, 453
Supply of Electricity for Agriculture, by C. A. C. Brown, 607
Power Supply for Agriculture in France, by P. Prénaud and L. Féraud, 607
Petroleum Fuels in Relation to Agriculture in Great Britain, by C. L. Gilbert, D. H. Meijnen and K. H. Sambrook, 608

Section B. Supply of Energy for Small-Scale Industries:
Reports of Proceedings, 653*, 682*
Economics and Sales Problem of Electric Utility Service in Small Commercial Market, by J. Gaskill and C. Barry, 653
Hot-Air Heating, by Dr. O. Göhring, 682

Section C. Supply of Energy for Household Purposes:
Reports of Proceedings, 653*, 682*
Stoves for Bohemian Lignite, by J. Roler, 653*
Solid-Fuel Burning Appliances in Sweden, by H. A. Landberg, 682
Domestic Solid Fuels, by H. L. Pirie, 682
Domestic Stoves in Germany, 683*

Section D. Supply of Energy for Street Lighting:
Report of Proceedings, 709

Section E. Supply of Energy for Electric Railways:
Reports of Proceedings, 709, 755
Electric Traction and Regenerative Braking on Japanese Railways, by Z. Yamashita, 709
Electric Traction in Germany, by Dr. Wechmann, 755
Electrification of French Railways, by H. Parodi and J. L. du Sablon, 755
Multiple-Train Units in France, by M. Garreau, 755

Worm Gear. See *Gear; Gearing*
Worn Metal Surfaces, Reconditioning by Oxy-Acetylene Welding
Worth, H., on Dartmoor Catchments, 114
Wrecks. See *Accidents*
Wright, A., & Co., Ltd., Aeration Test Burner for Gas, 569
Wright, T. P., on American Methods of Aircraft Production, 689
Writing Machine, High-Speed, Vonck (Engineering Designs, Ltd.), 675
Wrought Iron. See *Iron*

X.

X-RAYS. See *Röntgen Rays*

Y.

YAMASHITA, Z., on Regenerative Braking on Japanese Railways, 709
Yangtse River, Flow Problems of, 61, 165, 223, 241; Control Problems of, 580, 638, 740
Yarrow & Co., Ltd., Boilers for S.S. "Mauretania," 121; Boilers for S.S. "Queen Elizabeth," 383; Boilers for S.S. "Canton," 458
Year Books. See LITERATURE INDEX
Yellow River, Control Problems of, 579, 638, 681*
Yorkshire, South, Iron Industry in, 1698-1756, 750
Young, H. J., on "Loded" Cast Irons, 710
Yugoslavia, Mining Developments in, 685

Z.

ZEISS, C., Toolmakers' Microscope, 547*
Zeppelin Airships. See *Airships* under *Aeronautics*
Zinc Alloys. See *Alloys* under *Metallurgy*
— Coatings, Sprayed, for Steel-Surface Protection, 657*
— Mining in Yugoslavia, 685
— Prices. See *Metal-Price Diagrams*
— Production in Canada, 1937, 373
Zoller-Type Rotary Blower for Two-Stroke Diesel Engine (Petters, Ltd.), 11*
Zürich, Federal Institute of Technology Hydraulic Laboratory, 3*, 149*

PARAGRAPHS.

Accidents :

Accident Statistics and Data, 516
Survey of Accidents in Coke-Oven Industry, 361
United States, National Safety Competition, Bureau of Mines' Report, 99

Aeronautics :

Aeronautical-Laboratory Equipment and Key Industry Duty, 759
Air-Raid Precaution Equipment (Catalogue), 304
Air-Raid Precautions and Steel Construction, 335
Air-Raid Precautions and Water Supply, *Erratum*, 656
Air-Raid Protection Institute, 82
Aircraft Apprentices, School for, 139
"Aircraft Production," 616
Bristol Perseus Aero Engine, Endurance Test, 763
Busk Studentship, 42
Canada, Air-Mail Service, 763
Engines, Aero (Catalogue), 292
French Air Liner, Flying Model of, 108
Observers for R.A.F., Recruitment, 762
R.A.F. Expansion Programme, 132

Agriculture :

India, Distressed Areas, Relief Employment for, 276
Machinery, Agricultural (Catalogue), 292
Oxford Farming Conference, 561
Royal Show, 1939, 280

Alloys. See *Mining and Metallurgy*

Appointments, Awards, &c. :

Buchan Prize, Dr. E. W. Hewson, 686
Charles B. Dudley Medal (A.S.T.M.) to R. H. Heyer, 99
Clyde Shipbuilders' Honours, 535
City and Guilds Fellowships, 220
London University College Awards, 134
Miller Award, American Welding Society, 647
National Physical Laboratory, Directorship, 445
North-East Coast Institution of Engineers and Shipbuilders' Awards, 364
Shipbuilding Employers' Federation, Central Board, Changes of Officers, 585

Automobiles. See *Motor Cars*

Boilers. See *Engines and Boilers*

Bridges :

Aberuthven Bridge, Reconstruction, 233
Bray, Bridge over Thames, 626
Brimsdown-Station Road Bridge, 478
Middletown—Portland Bridge on the Connecticut River, 676

Buildings and Building Construction :

International Building Club, 219, 309
Roofing, Zinc Roll-Cap, 734
Supplies, Builders' (Catalogue), 548
Uniform Building Code, *Addendum*, 503

Canals :

Panama Canal Traffic, 225, 421

Catalogues :

89, 120, 148, 190, 218, 258, 292, 304, 352, 380, 391, 464, 548, 604, 633, 721, 750
Abwood Tool and Engineering Co., Ltd., 148
Air Control Installations, Ltd., 548, 590
Amsler, A. J., & Co., 258
Appleby-Frodingham Steel Co., Ltd., 218
Batteries, Ltd., 721
Bayliss, Jones & Bayliss, Ltd., 464
Blackman Export Co., Ltd., 89
Bleicher & Mitchell, Ltd., 120
Brady, G., & Co., Ltd., 292
Bray, G., & Co., Ltd., 633
Bristol Aeroplane Co., Ltd., 292
British Aluminium Co., Ltd., 292
British Insulated Cables, Ltd., 89, 120, 352 (2), 380, 548
British Rototherm Co., Ltd., 604
British Steel Piling Co., Ltd., 292, 352
British Thermostat Co., Ltd., 721
Brooke Tool Manufacturing Co., Ltd., 89
Brookhirst Switchgear, Ltd., 548, 721, 750
Brush Electrical Engineering Co., Ltd., 292, 750
Burton, Griffiths & Co., Ltd., 120
C.A.V.-Bosch, Ltd., 89, 750
Callender's Cable and Construction Co., Ltd. 380
Cambridge Instrument Co., Ltd., 89
Catalogues—*continued.*
Celotex, Ltd., 190
Churchill, C., & Co., Ltd., 148
Cochran & Co., Annan, Ltd., 120
Colvilles, Ltd., 218
Consolidated Pneumatic Tool Co., Ltd., 292
Craven Brothers (Manchester), Ltd., 380
Crofts (Engineers), Ltd., 120
Crompton Parkinson, Ltd., 89, 380
Crossley-Premier Engines, Ltd., 304
Darwins, Ltd., 721
Davenport Engineering Co., Ltd., 190
Davidson & Co., Ltd., 148, 380, 392, 750
Deloro Smelting and Refining Co., Ltd., 89
Dobbie, McInnes, Ltd., 304
Dorman, Long & Co., Ltd., 380
Drayton Regulator and Instrument Co., Ltd., 89
Elliott Brothers (London), Ltd., 464
English Electric Co., Ltd., 120, 464
English Steel Corporation, Ltd., 604, 633, 750
Felco Hoists, Ltd., 548
Ferguson-Brown, Ltd., 292
Firth, Thos., and John Brown, Ltd., 89, 218, 604
Firth-Vickers Stainless Steels, Ltd., 89, 380
Fowler, J., & Co. (Leeds), Ltd., 89
General Electric Co., Ltd., 89 (2), 120, 148, 292, 548, 604, 721, 750 (2)
Gent & Co., Ltd., 190, 292
Germ Lubricants, Ltd., 380
Giddings & Lewis Machine Tool Co., 380
Greenwood & Batley, Ltd., 548
Griffin & Tatlock, Ltd., 190
Guest, Keen, Baldwins Iron & Steel Co., Ltd., 464
Hadfields, Ltd., 148, 304, 633
Hall, B. J., & Co., Ltd., 89
Hall, J. & E., Ltd., 380
Hardypick, Ltd., 292
Harland Engineering Co., Ltd., 380
Hart, T., Ltd., 391
Head, Wrightson & Co., 750
Henley's, W. T., Telegraph Works Co., Ltd., 89, 304, 391
Hick, Hargreaves & Co., Ltd., 292
Higgs Motors, Ltd., 258, 391
Hilger, Adam, Ltd., 604
Holman Brothers, Ltd., 258
Holmes, J. H., & Co., Ltd., 148
Hopkinsons, Ltd., 148
Howden, J., & Co. (Land), Ltd., 148, 464
Igranic Electric Co., Ltd., 89
Imperial Smelting Corporation, Ltd., 89
Ismailia Valve Co., 548
Jackman, J. W., & Co., Ltd., 292
Jensen & Nicholson, Ltd., 391
Jones, E. H. (Machine Tools), Ltd., 89, 380, 392, 721
Keith, Blackman, Ltd., 120, 352
Klaxon, Ltd., 258
Koepfer, J., & Söhne, G.m.b.H., 750
Lacy-Hulbert & Co., Ltd., 292
Lancashire Dynamo & Crypto, Ltd., 292, 380
London Electric Firm, 750
M. and C. Switchgear, Ltd., 89
Marbaix, Gaston E., Ltd., 148
Marelli & Co., Ltd., 89
Marshall, Sons & Co. (Successors), Ltd., 89, 391, 548
Millspaugh, Ltd., 292
Miniature Bearings, Ltd., 604
Moenich, Oscar, & Co., Ltd., 548
Morris, Herbert, Ltd., 148, 391
Mortimer, Gall & Co., Ltd., 750
Moss Gear Co., Ltd., 750
National Gas and Oil Engine Co., Ltd., 190, 292
Negretti & Zambra, 90
Neill, J., & Co. (Sheffield), Ltd., 391
Newbury Diesel Co., Ltd., 721
Newton, Chambers & Co., Ltd., 604
Osborn, S., & Co., Ltd., 380
Ozonair, Ltd., 258
Parsons Engineering Co., Ltd., 120
Payen, J., Ltd., 190
Philips' Industrial X-Ray Service, 391, 548
Phosphor Bronze Co., Ltd., 304
Poppe Rubber and Tyre Co., 352
Powell Duffryn Associated Collieries, Ltd., 258
Ransomes & Rapier, Ltd., 120, 304
Rawlplug Co., Ltd., 90
Renold & Coventry Chain Co., Ltd., 392
Reyrolle, A., & Co., Ltd., 120
Robey & Co., Ltd., 604
Robinson, T., & Son, Ltd., 148, 750
Rose, Downs & Thompson, Ltd., 120
Russell, Newbury & Co., 633
Sankey, J. H., & Son, Ltd., 380
Scott, H. J., & Co. (Belfast), Ltd., 548
Serck Radiators, Ltd., 548
Shorter Process Co., Ltd., 190
Siebe, Gorman & Co., Ltd., 304, 721
Catalogues—*continued.*
Siemens-Schuckert (Great Britain), Ltd., 89
Silentbloc, Ltd., 218
Smith, T., & Sons (Rodley), Ltd., 89
Soag Machine Tools, Ltd., 292, 304, 750
Stanton Ironworks Co., Ltd., 548
Staveley Coal and Iron Co., Ltd., 352
Sternol, Ltd., 548
Stewarts and Lloyds, Ltd., 750
Stone, J., & Co., Ltd., 292
Sturtevant Engineering Co., Ltd., 89, 292, 464, 548
Switchgear & Cowans, Ltd., 292
Tinsley, H., & Co., Ltd., 464
Victor Oil Engines (Coventry), Ltd., 89
Ward, T. W., Ltd., 633
Wellworthy Piston Rings, Ltd., 120, 304, 750
Westinghouse Brake & Signal Co., Ltd., 148, 464, 604, 750
Wickman, A. C., Ltd., 148
Willemore & Tibbenham, 352
Wycliffe Foundry Co., Ltd., 604

Cement and Concrete :

Concrete Reinforcement, Standard Steel Bars and Wires for, 72

Chemistry. See *Physics and Chemistry*

Coal :

British Coal Utilisation Research Association, 589
Canadian Imports, 476
Cardiff, 13, 43, 73, 103, 133, 161, 191, 219, 246, 277, 304, 335, 364, 393, 421, 449, 476, 507, 535, 560, 588, 617, 647, 676, 704, 735, 763
Coal-Washing Plant (Catalogue), 721
Colliery Equipment (Catalogue), 120
Danish Imports of British Coal, 224, 338
France, Imports of British Coal, 13
France, Northern, Collieries of, 334
Industries and Coal Prices, 219
Middlesbrough Coke, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 534, 561, 589, 617, 646, 677, 705, 735, 763
Mining Plant (Catalogue), 604
Poland, Coal Exports, 97, 191, 476; Production, 191, 304, 646
Safety Appliances (Catalogue), 304
Sheffield, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 476, 507, 535, 560, 589, 617, 647, 676, 704, 734, 762
Smokeless Coal (Catalogue), 258
Stone-Dust Distributor (Catalogue), 292
Testing of Coal, Standard Method, 473
Winding Plant (Catalogue), 120 (2)

Colleges. See *Education*

Companies :

Carron Company, History of, 247
Robinson, T., & Son, Ltd., Centenary, 246

Concrete. See *Cement and Concrete*

Cranes, Conveyors, &c. :

Chain Slings, Safe Loading of, 247
Conveying Plant (Catalogue), 292
Holyhead Goods Traffic, Conveyors for Expediting, 393
Lifting Tackle (Catalogue), 548
Pulley Blocks (Catalogues), 148, 391
Scottish Crane Contracts, 647
Shunting Crane, Diesel (Catalogue), 120
Telpher Plant, Automatic (Catalogue), 120
Wire Ropes for Cranes, Standard, 494

Docks. See *Harbours*

Education :

Apprentices, Aircraft, School for, 139
Army Vocational Training Centre, Aldershot, 686
Bombay Apprentices, Compulsory Training Clause in Contracts, 160
Borough Polytechnic, London, Students' Work Exhibition, 734
British Foundry School, 102
Busk Studentship Award, 42
Chadwick Public Lectures, 420
Christmas Lectures for Young People, 760
City and Guilds of London Institute Awards, 364
Industrial Law, Lectures on, 334
Japan, Hokkaido University Calendar, 256
Mary Ward Settlement, Lectures on Engineers and the Community, 409
Mercantile Marine, Engineers' Examinations, 42
Education—*continued.*
Naval Architecture and Marine Engineering Scholarships, 677
Northampton Engineering College Past Students' Association, 705
Planning and Research for National Development, School of, 312
Queen Mary College Grant, 233
Regent-street Polytechnic, London, Lord Ashfield on the Opportunities of the Engineering Profession, 586
Scholarships, Oxford and Cambridge Universities, Extra-Mural Studies, 673
Sheffield University Annual Report, 617
Sheffield University's New Laboratories, 277, 365
South Africa, Technical Colleges of, 248
Technological Institute of Great Britain, 534
Toronto University, Engineering Society, *Transactions*, 277
Tropical Hygiene, Lectures, 598
University College, London, Awards, 134

Electricity :

Accessories, Electrical (Catalogue), 548
Accumulators, Train-Lighting, Standard, 491
Aluminium in Electrical Installations (Catalogue), 292
Australia, Sydney Electricity Supply, 133
Batteries, Storage (Catalogue), 721
Boiler-House Control Gear (Catalogue), 721
Brushes, Carbon, for Electrical Machines, Standard, 436
Cables (Catalogues), 304, 352, 380, 391
Cable-Box Compounds, Standard, 277
Cable-Jointing Materials (Catalogue), 380
Cable Manufacture (Catalogue), 380
Cable Sheathings, Standard, 284
Calcutta Electricity Supply, 522
Canada, Electric Displays and Lamp Signs, Standard, 494
Canada, Generation Statistics, 300
Canada, Water Power in, 133
Ceiling Roses, Standard, 647
Clocks, Tell-Tale (Catalogue), 190
Contactors, Standard, 321
Control Gear (Catalogues), 89, 750
Ducts, Steel, &c., for Electrical Services, Standard, 303; Non-Metallic, 762
Earthing Conductor, Lead-Sheathed, 385
Electrical Industries Benevolent Association, 534
Electrodes, Arc-Welding, Approved, 573
Electrode, Welding, for A.C. Equipment, 93
Electrodes for Use in Shipbuilding, Standard, 17
Equipment, Electrical (Catalogue), 89
Factory Lighting, Standard, 102
Fans, Electric (Catalogue), 89
Fuses, Liquid (Catalogue), 548
Fuses, Service (Catalogue), 89
Generation Statistics, 246, 453, 511, 732
Generators, Electric (Catalogue), 548
Instruments, Electrical (Catalogue), 464
Insulation, Mica (Catalogue), 292
Ireland, Northern, Generation Statistics, 161, 447
Italy, Generation Statistics, 449
Lamp, Battery, for Emergency Purposes, 494
Lamps, Gas-Discharge, Lanterns for (Catalogue), 148
Lamp, Sleray-Dual, 507
Lighting, Electric, British Standards, 219
Lighting, Electric, History of, 759
Lighting, Flood (Catalogue), 89
London and Home Counties Electricity Order, Amendment, 560
Machinery, Electrical (Catalogue), 292
Magnets, Permanent (Catalogue), 721
Manufacturing, Electrical ("Some Information"), 436
Materials and their Testing, Joint Committee, 140, 561
Meters Act, Electricity Supply, 1936, 54
Meters, House-Service (Catalogue), 664
Meter Parts, Washing Machine for, *Erratum*, 589
Motors, Electric (Catalogues), 89(2), 148, 258, 380, 391, 548
Ovens, Electric-Baking (Catalogues), 604
Position Indicator for Transformers (Catalogue), 464
Power-Station Equipment (Catalogue), 464
Prepayment Meters (Catalogue), 352
Pump Motors (Catalogue), 380
Radio-Frequency Allocations, Chart, 392
Rectifiers, Metal (Catalogue), 750
Safety Devices, Electrical (Catalogue), 120
Searchlights, Modern, 666
Soldering Irons (Catalogue), 190
Starters, Electric (Catalogues), 89, 648
Switchboards, Boiler-House (Catalogue), 548
Switchboards, Marine Craft (Catalogue), 750
Switchgear (Catalogues), 89 (2)
Switchgear, High-Tension, Tripping Gear for, 295

Electricity—*continued.*

Switches, Non-Automatic, Oil, *Erratum*, 185
Switches, Oil (Catalogue), 292
Switches, Single and Multi-Point Push-Button, 744
Switch Sockets, Shutter Pattern, 277
Telegraph Lines (Catalogue), 352
Telephone Lines (Catalogue), 352
Thermionic Valve, History of, 756
Turkey, Swedish Electric Power Plant for, 73
Welding, Arc, Electrodes for Use in Shipbuilding, Standard, 17
Welding, Electrode for A.C. Equipment, 93
Welding Electrodes, Standard Shanks, 393
Wiring Regulations, &c., National Committee, 629
X-Ray and Research Equipment (Catalogue), 391

Engines and Boilers :

Boilers (Catalogue), 548
Boilers, Diesel-Engine Exhaust (Catalogue), 120
Boiler-House Control Gear (Catalogue), 721
Engines, Steam (Catalogues), 190, 604
Fan Control, Boiler-House (Catalogue), 548
Marine Engines (Catalogue), 120
Pistons and Rings (Catalogue), 120
Power Generation, Progress in, 448
Pumps, Boiler-Feed (Catalogue), 380
Soot Blowers (Catalogue), 148
Traps, Steam (Catalogue), 89
Turbines, Steam (Catalogue), 548

Exhibitions :

Foire de Paris, 1939, 598
Highway Exhibition, International, Chile, 98
Leipzig Fair, 763
Liége International Exhibition, 365
"Model Engineer" Exhibition, 132
Motor Exhibition, International, Earl's Court, 420
New Zealand Centennial Exhibition, 199
Prague Autumn Fair, 199

Ferro-Concrete. See *Cement and Concrete*

Gas :

Gas-Temperature Measurement Symposium, 612
Gasholder for Coke-Oven Gas, 13

Gas and Oil Engines :

Boilers, Diesel-Engine Exhaust (Catalogue), 120
Diesel Engines (Catalogues), 89, 292, 633, 721
Gas Engines (Catalogue), 190
Oil Engines, Heavy-Duty (Catalogue), 304
Petrol-Engine Starter, Villiers, 266
Power Generation, Progress in, 448
Priestman Oil Engine, Model of First, 598
Supercharging, Büchi System, 247

Harbours, Docks, Piers, &c. :

Southampton Docks, Southern Railway Handbook, 103 ; Centenary Pamphlet, 655

Hydraulics :

Pumps, Boiler-Feed (Catalogue), 380
Valves, Flap (Catalogue), 548

Industries and Commerce :

Anglo-Australian Commerce, 618
Anglo-Italian Clearing Accounts, 218
Birmingham, Industrial, 247
Canada, Motor-Car Industry, 157
Chromium Plating, Historical Survey, 433
Coal Prices and Industries, 219
Coal Tar, Sampling of, Standard, 341
Contracts, 12, 42, 72, 102, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 562, 588, 616, 646, 704, 734, 762
Cutler's Feast, 476
Czechoslovakian Motor-Car Industry, 13
Germany, Economic Position and Cyclic Theory, 417
Grimsby as a Factory Centre, 365
Income-Tax Chart Manual, Tolley's, 247
India-South Africa Commerce, 364
Industry, New Light of, 247
Law, Industrial, Lectures on, 334
London County Council Contract Conditions, Postponement Clause, 74
Management, Scientific, International Congress, 73
Overseas Trade Opportunities, 246
Personal, 12, 42, 72, 102, 132, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 560, 588, 616, 646, 676, 704, 734, 762
Ready Reckoner, "Per Dozen," 705
Sales Technology, Institute of, 402
Sheffield and Defence Orders for Aircraft, 73
Sheffield, Master Cutler Installation, 420
Special Areas, Progress of, 160
Statistics, Official, Guide to, 132
Swansea, Tin-Plate Shipments, 612
Team Valley Trading Estate, 397
Tenders, 12, 42, 72, 102, 132, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 560, 588, 616, 646, 676, 704, 734
United Kingdom, Consumption of Aluminium and other Metals, 171
United States Tin-Plate Industry, 191

Institutions. See *Technical Societies*

Internal-Combustion Engines. See *Gas and Oil Engines*

Iron and Steel :

Air-Raid Precautions and Steel Construction, 335
Armament Plants, Maintenance Question, 43
Atlas Works, Springburn, Re-Opening, 477
Bars, Steel, for Reinforcement, Standard, 72
Blast-Furnaces Blown Out, 161, 191
British Cast-Iron Research Association, 321
Canada, Iron and Steel Imports, 560
Canada, Iron and Steel Production 73, 393, 763

Iron and Steel—*continued.*

Cleveland Basic Iron Prices, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 534, 561, 589, 617, 646, 677, 705, 735, 763
Cleveland Iron Market, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 534, 561, 589, 617, 646, 677, 705, 735, 763
Cleveland Manufactured Iron and Steel, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 534, 561, 589, 617, 646, 677, 705, 735, 763
Dorman Long Blast-Furnaces, 161, 191
East Coast Hematite, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 534, 561, 589, 617, 646, 677, 705, 735, 763
English Steel Corporation, Trade Conditions in Sheffield, 143 ; Catalogue of Products, 604
Ferro-Vanadium, Chemical Standard, 365
Firth, Thos., and John Brown, Ltd., Visit by Cutler's Guests, 476
Gas-Mask Stores, Steel Shelving for, 73
Grant, A. J., on Development of New Uses for Steel, 420
Great Britain, Iron and Steel Production, 102, 343, 477
Iron Castings, Standard, 13
Ironwork, Ornamental (Catalogue), 464
London Iron and Steel Exchange, Closing of, 758
Middlesbrough, Foreign Ore, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 534, 561, 589, 617, 646, 677, 705, 735, 763
Middlesbrough, Scrap Prices, 13, 43, 73, 103, 133, 161, 191, 247, 277, 305, 335, 365, 393, 477, 507, 534, 561, 589, 617, 646, 677, 705
Nickel-Chromium-Molybdenum Steel, Chemical Standard, 365
Paint, Coal-Tar, for Iron and Steel Work in India, 276
Permanent Magnets, Alloy Steels for Manufacture (Catalogue), 721
Piling, Steel (Catalogues), 292, 352
Pipes, Cast-Iron (Catalogue), 352
Pipes, Cast-Iron, Standard, 393
Pipes, Steel (Catalogue), 750
Scottish Iron and Steel Trade, 13, 43, 73, 103, 133, 191, 219, 247, 277, 305, 335, 365, 393, 421, 449, 477, 507, 535, 589, 616, 647, 677, 705, 735, 763
Scottish Scrap-Iron Prices Agreement, 13
Sheffield and Aircraft Steel Production, 73
Sheffield Iron and Steel Trade, 13, 43, 73, 103, 133, 161, 191, 219, 247, 277, 305, 335, 365, 393, 420, 449, 476, 507, 535, 560, 588, 617, 647, 676, 704, 734, 763
Steels, Alloy (Catalogue), 750
Steel Castings (Catalogue), 89
Steel for Die Blocks for Drop Forging, Standard, 332
Steels, High-Grade (Catalogue), 218
Steels, High-Tensile (Catalogue), 218
Steel Sheets, Galvanised Corrugated, Standard, 320
Steel, Stainless (Catalogue), 380 (2)
Steels, Structural (Catalogue), 380, 604
Steel, Weather-Resisting Mild (Catalogue), 218
Structural Steelwork, Handbook of, 735
Swedish Iron Industry, 574
Tees Imports, 43, 191, 305, 421, 561, 677
Tees Shipments, 43, 161, 305, 421, 534, 677
Turkey, Steel Plant for, 43
United States Pig Iron Industry, 140 ; Iron Ore Mining, 142
Wagons, Steel, for Soda Ash, 491
Welsh Trade, 13, 43, 73, 103, 133, 161, 191, 219, 246, 277, 304, 335, 364, 393, 421, 449, 476, 507, 535, 560, 588, 617, 647, 676, 704, 735, 763
Wire Ropes for Cranes, Standard, 494
Wire, Steel, for Reinforcement, Standard, 72

Labour Questions. See *Trade Societies*

Legal :

Electricity Supply (Meters) Act, 1936, 54
Factories Act, 1937, Examination of Plant, 226 ; Regulations and Orders, 82
Holidays-with-Pay Bill, 82
Law, Industrial, Lectures on, 334
Public-Health Law Development, Lecture, 420
Unemployment Benefit Disqualification Case, 417

Literature. See LITERATURE INDEX

Machine and Other Tools :

Circular-Saw Benches (Catalogue), 750
Contour-Forming Machines (Catalogue), 392
Cutting Fluids, 477
Cutting Fluids and the Machine Tool, *Erratum*, 580
Cutting Fluid, Sternopal, 104
Cutting Tools (Catalogues), 89, 148
Drill, Radial, with Pre-Selective Gear, *Addendum*, 477
Drilling Machines (Catalogue), 148
Engineers' Tools (Catalogue), 89
Facing Tools, Spot (Catalogue), 89
Grinding Machines (Catalogue), 148
Hack Saws (Catalogue), 391
Handsaw Tooth, "Spearfast," 402
Lathe Beds, Hardened, 761
Machine Tools, General (Catalogues), 148, 292, 380, 780
Milling Cutters and Reamers, Standard, 304
Milling Machines (Catalogues), 380, 750
Mortising Machine (Catalogue), 148
Phœnix Tool Cabinet, 233
Presses, Power (Catalogue), 89
Reamer, Wimet-Tipped Expansion, 248
Straightedges, Toolmakers', Standard, 448
Stud-Setting Equipment, 133
Taps, Ground-Thread (Catalogue), 604
Tools, Pneumatic (Catalogue), 292
Tools, Small (Catalogue), 633
Turner's Handbook, New, 735

Marine Engineering. See *Engines and Boilers; Ships and Shipbuilding*

Mining and Metallurgy :

Aluminium Alloys, High-Strength, Data, 12
Aluminium and Other Metals, U.K. Consumption, 171
Aluminium, World Production, 611
Canada, Chromium Production in, 132 ; Copper Production 97 ; Gold Production, 393 ; Ontario Limestone Deposits, 305 ; Quebec Asbestos Production, 13, 501
Castings, Centrifugal (Catalogue), 292
Chromium Plating, Historical Survey, 433
Die Castings (Catalogue), 89
Hammers, Drop (Catalogue), 120
Italy, Aluminium Production, 400
Laboratories, New, Sheffield University, 277
Mining Plant (Catalogue), 604
Monel Metal, Data, 647
New Zealand Manganese and Asbestos, Grant of Working Rights, 652
Refractories (Catalogue), 380
Rolling Mills (Catalogue), 120
Rolling Mill Equipment (Catalogue), 750
Smiths' Hearths (Catalogue), 352
Soldering Irons, Electric (Catalogue), 190
Surface Hardening Process (Catalogue), 190
Temperature and CO_2 Indicator (Catalogue), 89
Tin, World's Production and Consumption, 26, 360

Miscellaneous :

Air-Compressor Test-Bed Drive, *Addendum*, 191
Air-Conditioning Plant (Catalogue), 380
Air Heaters and Cleaners (Catalogues), 89, 464, 633
Air-Raid Shelters (Catalogues), 464, 548
Air-Raid Shelter and Garage, Combined, 487
Army Vocational Training Centre, Aldershot, 686
Bakelite Heat-Resisting Materials, 365
Bakelite for Plywood Manufacture, 13
Bakelite, Shaped Laminated Sheets, 392
Baking Ovens (Catalogue), 604
Birmingham, Industrial, 247
Books, Standard, British Scientific and Technical, 247
Canada-U.S. Road Traffic, 303
Cane-Fibre Products (Catalogue), 190
Carbon Dioxide and Temperature Indicator (Catalogue), 89
Clocks, Tell-Tale (Catalogue), 190
Coal Tar, Sampling of, Standard, 341
Colvilles, Ltd., Fracture Clinic, 534
Community and the Engineer, 409
Compressed-Air Engines (Catalogue), 258
Compressors, Rotary (Catalogue), 292
Contracts, 12, 42, 72, 102, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 562, 588, 616, 646, 704, 734, 762
Cooling and Ventilating Plant (Catalogue), 548
Craftsmanship and Draughtsmanship Competition, 365
Crushing-Plant Replacements (Catalogue), 148
Czechoslovakia, Land Reclamation in, 162
Dermatitis Prevention (Catalogue), 548
Drawing-Office Accessories (Catalogue), 89
Drying Plant (Catalogue), 120, 750
Escalators (Catalogue), 380
Engineer and the Community, 409
Engineers' Guild, 688
Engineers, Status, Qualifications and Remuneration, 616
Excavators (Catalogues), 89, 304
Fans, Ventilating (Catalogues), 89, 148 (2), 352, 548, 750
Filters, Air, &c. (Catalogue), 292
Fire Alarms (Catalogue), 190
Fire Service, London Auxiliary Volunteer, 535
Gaskets (Catalogue), 190
Grease-Lubrication Battery, Tecalemit Multi-point, *Addendum*, 272
Grimsby as a Factory Centre, 365
Heat and Light (Catalogue), 750
Heating Plant, &c. (Catalogue), 380, 750
Heating and Ventilation, Progress in, 448
Homogenisers, Valve for (Catalogue), 750
Hose, Rubber, Standard, 276
Hyderabad, Public Amenities Improvement, 335
Income-Tax Chart Manual, Tolley's, 247
Instruments, Anti-Vibration Mountings for (Catalogue), 218
Instruments, Indicating, &c. (Catalogue), 190
Laboratory Equipment (Catalogue), 190
Light and Heat (Catalogue), 750
Lining and Coating Material, Lithcote, 102
Liquid-Fuel Meters (Catalogue), 89
London, City, Road Widening, 777
Lubricants (Catalogue), 380
Machinery, Reconditioned (Catalogue), 633
Maiden Ey-Pass Road, 161
Materials and their Testing, Joint Committee, 140, 561
Models, Scale, Use in General Engineering, *Erratum*, 284
Municipal Services, Ministry of Health Loans, 133
Norwich Engineering Society, 735
Oil-Burning Equipment, Standard, 365
Oil, Vegetable, Machinery (Catalogue), 120
Paint Gun, "Varispray," 705
Personal, 12, 42, 72, 102, 132, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 560, 588, 616, 646, 676, 704, 734, 762
Petroleum Refinery, Alberta, 219
Plywood, Durisol, 306
Population Congestion Evils, Lecture, 420
Professional Classes Aid Council, 161
Public Health Law, Lecture, 420
Radiators and Heat Exchangers (Catalogue), 548
Refuse-Disposal Plant, Stockholm, 448
Respirators (Catalogue), 721
Road Federation, British, 561
Road Improvements, Hebrides, 118
Road Improvements, Somerset, 43
Road-Roller Attachment (Catalogue), 89
Road Transport (Defence) Advisory Committee, 506
Rubber Products (Catalogue), 352
Rubber from Tomato Peel, 448
Sales Technology, Institute of, 402

Miscellaneous—*continued*

Screens, Vibrating and Revolving (Catalogue), 633
Set-Square, "Trig-Angle" Adjustable, 365
Shutters, Roller (Catalogue), 292
Signals, Staff-Locating (Catalogue), 292
Signals, Warning (Catalogue), 258
Somerset Road Improvements, 3
Spectrographic Apparatus (Catalogue), 604
Standards Institution, British, 13, 17, 72, 219, 276, 277, 284, 303, 304, 320, 321, 332, 341, 365, 392 (2), 436, 448, 473, 494, 648
Statistics, Official Guide to, 132
Sutton By-Pass Road, Pedestrian Subways, 206
Tank, Hot-Water Storage, Everdur Alloy, 160
Tank Indicators (Catalogue), 304
Tenders, 12, 42, 72, 102, 132, 160, 190, 218, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 560, 588, 616, 646, 676, 704, 734
Testing Machines (Catalogue), 258
Thermometry, Modern (Catalogue), 604
Timbers, Colonial, 506
Tractors (Catalogue), 391
Tropical Hygiene, Lectures on, 598
Tubes, Pneumatic, Transmission (Catalogue), 292
United States–Canada Road Traffic, 303
United States, Highway Research Board, 161
Uxbridge Road, Reconstruction of, 449
Valves and Strainers (Catalogue), 721
Ventilating Plant (Catalogues), 120, 380
Ventilation and Heating, Progress in, 448
Washing Machine for Electric-Meter Parts, *Erratum*, 589
Water-Cooling Towers (Catalogue), 190
Welding, Acetylene, Gorton Works Plant, L.N.E.R., 72
Welding (Catalogue), 352
Welding Repairs, Lantern Slides, 507
Winches for Clothes Rack (Catalogue), 750
Winders, Steam and Electric (Catalogue), 120 (2)
Window, &c., Frames, Metal (Catalogue), 292
Wood Preservation (Catalogue), 391
Worcestershire Trunk Road Improvement, 759

Motor Cars, &c. :

Australia, Motor-Vehicle Imports, 238
Belfast, Electromatic Vehicle Control at, 103
Canada-U.S. Traffic, 303
Canadian Motor-Car Industry, 157
Cycle Screw Threads, Standard, 773
Czechoslovakia, Motor-Car Industry, 13
Drivers, Road-Motor, Training School for, 218
Electromatic Vehicle Control at Belfast, 103
Indicator, Speed Limit, 392
Motor-Car Exports, Great Britain, 218
Motor-Vehicle Drivers, Training School, 218
Pistons and Rings (Catalogues), 304, 750
Repair Certificate Examinations, I.A.E., 177
Road Transport (Defence) Advisory Committee, 506
Road Vehicles Registered, 104, 248, 483, 776
South Africa, Motor Cycles in, 220
Touring-Car Figure of Merit, 305
World Output, 430

Naval :

Admiralty Contracts, 247, 477, 647, 763
"Ascaro," Italian Destroyer, Launch, 478
"Barlow," H.M. Boom-Defence Vessel, Launch, 277
"Barmouth," H.M. Boom-Defence Vessel, Launch, 475
"Entre Rios," Argentine Destroyer, 392, 455
"Fuciliere," Italian Destroyer, Launch, 478
Italian Submarines, Launch of, 199
Italian Torpedo Boats, Launch of, 219
"Janus," H.M. Destroyer, Launch, 598
"Jervis," H.M. Flotilla Leader, Launch, 353
"Kelly," H.M. Flotilla Leader, Launch, 590
"Manchester," H.M. Cruiser, Trial Trip, 191
"Moorland," H.M.S., Launch of, 671
"Somali," H.M. Destroyer, Trials, 734
"Thetis," H.M. Submarine, Launch, 58
"Thistle," H.M. Submarine, Launch, 535
"Trident," H.M. Submarine, Launch, 705
Warship Machinery Contract, Scottish, 561

Obituary. See GENERAL INDEX

Physics and Chemistry :

Chemical Standards, Ferro-Vanadium and Nickel-Chromium-Molybdenum, 365
Chemical Works, Safety Rules for, 276
Fans for Chemical Works (Catalogue), 392

Power Plants. See *Electricity*

Power Transmission :

Bearings, Bronze (Catalogue), 304
Bearings, Miniature Ball (Catalogue), 604
Belt-Slip Prevention, 305
Chain Drives (Catalogues), 391, 548
Clutches, Disc (Catalogue), 120
Couplings, Geared (Catalogue), 750
Drives, Variable-Speed (Catalogue), 721
Gears, Variable-Speed (Catalogue), 604
Power Transmission Association, 617
Ropes, Driving (Catalogue), 391
Torrington Needle Bearings, 132
Vee-Rope Drives, Computer for, 736

Railways and Locomotives :

Djibouti-Addis Ababa Railway, 185
Ethiopia, Railcar Service in, 361
Great Western Railway Magazine, 653
Indian Railways, 1936-37, *Addendum*, 134
Italy, Electrification of Ancona-Bologna-Milan Line, 477
King's Cross Underground Station, Reconstruction, *Erratum*, 444
London Midland and Scottish Railway, Shock-Absorbing Goods Wagons, *Addendum*, 56 ; Windermere, Railway Launch "Swan," 72 ; Three-Car Diesel Train, 364

Railways and Locomotives—*continued.*
London and North Eastern Railway, Colour-Light Signals, 28; Gorton Works, Acetylene-Generating Plant, 72; Speed Record, 74
Russian Railway Mileage, 586
Signalling Equipment (Catalogue), 148
Signalling Installation, Hull, 604
Signalling, Interlocking (Catalogue), 464
Southern Railway, Southampton Docks, Handbook, 103; Centenary Pamphlet, 655
Statistics, Railway, 132, 692
Swedish Railways, Electrification of, 160
Wagons, Steel, for Soda Ash, 491

Schools. See *Education*

Ships and Shipbuilding:
Admiralty Contracts, 247
Clyde Activities, 43, 161, 305, 421, 535, 677
Coastwise Shipping, Service and Rates, 576
Electrodes for Use in Shipbuilding, Standard, 17
Engines, Small Marine (Catalogue), 120
Icebreaker for the Caspian Sea, 585
Italo-Albanian Ferryboat Service, 187
Launches and Trial Trips, 12, 52, 72, 102, 160, 218, 276, 304, 334, 364, 392, 448, 476, 506, 534, 589, 617, 705, 734, 762
Life-Saving Appliances in Merchant Ships, 676
Lifeboat, Motor, for Newbiggin, 604
Machinery, Marine, 1938 Output, 733, 763
Marine Auxiliaries, Control (Catalogue), 750
"Mauretania," Cunard White Star Liner, *Addendum*, 218
Mercantile Marine, Engineers' Examinations, 42
Naval Architecture and Marine Engineering Scholarships, 677
"Queen Elizabeth," Cunard White Star Liner, 646
Scottish Shipbuilding, 43, 161, 305, 421, 535, 677
Scottish Shipbuilding Contracts, 13, 277, 477, 561, 589
Shipbuilding in 1938, 734, 762
Switchboards, Marine Craft (Catalogue), 750
United States Shipbuilding, 140
Windermere Launch "Swan," L.M. & S. Railway, 72
Wreck Statistics, Lloyd's, 132, 774

Societies. See *Technical* and *Trade*

Technical Societies, &c.:
American Society for Testing Materials, Honours and Awards, 132
American Welding Society, 647
Automobile Engineers, Institution of, 177
British Association, 284, *Erratum*, 704
Electrical Engineers, Institution of, 42, 72, 82, 103, 140, 162, 400, 561
Engineering Congress, International, Glasgow, 700
Engineering Inspection, Institution of, 570
Faraday Society, 102
Fuel, Institute of, 73, 612
Hull Association of Engineers, 190
Iron and Steel Institute, 420
Junior Institution of Engineers, 607, 616
Liverpool Engineering Society, 560
Management Congress, International, 73
Materials and their Testing, Joint Committee, 140, 561
Mechanical Engineers, American Society of, 617
Metals, Institute of, 420
Meteorological Society, Royal, 686
Municipal Electrical Association, Inc., 417, 503
Naval Architects, Institution of, 392, 502, 677
North-East Coast Institution of Engineers and Shipbuilders, 364
Norwich Engineering Society, 735
Oxford Farming Conference, 561
Petroleum, Institute of, 617
Production Engineers, Institution of, 507
Public Health Services Congress, *Erratum*, 696
Royal Aeronautical Society, 576
Supervising Electrical Engineers, Association of, 12
Timber Utilisation, International Conference, 276
Transport, Institute of, 448
Whitworth Society, 115
World Power Conference, Vienna Meeting, 102, 190

Telegraphy. See *Electricity*

Telephony. See *Electricity*

Tools. See *Machine and other Tools*

Trade. See *Coal; Industries; Iron and Steel Ships and Shipbuilding*

Trade Societies, &c.:
Accidents, Industrial, Insurance in Germany, 243
Admiralty, Dockyard Founders and Wage Improvements, 417
Agar, T. W., Appointment as Assistant Secretary of National Foremen's Association, 673
Aircraft Factory Strike, Cotton Hackett, 301
Apprentices, Bombay, Compulsory Training Clause in Contracts, 160; France, Apprenticeship Rules Question, 557; India, Department of Industries' Apprenticeship Scheme, 585; Denmark, New Law: Conditions, and Application by Apprentices' Council, 673; U.S. Fair Labour Standards Act, Learners and Apprentices, Regulation Affecting Lower Wages, 673
Approved Societies, Trade Union Association of, Social Services Resolutions, 673
Armament Programme, Favourable Position of Building Trade Operatives in Relation to Defence Works, 38; Electrical Trades Union, Reason for Resolution Opposing Co-operation, 99; A.E.U. Opposition to Relaxation, in Favour of Re-armament, of Existing Regulations, 128; Sir T. Inskip on the Excellent Response of all Defence Workers, 157; A.E.U. Comments on Public Accounts Reports and on Economy in the Purchase of Armament Equipment, 215; T.U.C. on Prime Minister's View of Industrial Livelihoods at Close of Armament Programme, 242; T.U.C. Rejection of Motion to Refer Back to G.C. the Armament Section of Report, 344; A.E.U. on the Use of Armaments and on Dilution, 344
Austin Aircraft Factory Strike, 301
Australia, Queensland Industrial Court Decision in Relation to Working Hours, 344; Railways 44-Hour Week in Workshop Scheme, Adverse Ballot, 656
Belgium, Data as to Overtime Worked, 39; Royal Orders as to Methods to be Observed in Polishing and Plating Shops, 39
Benefit Allowances, Number of Unemployed Applicants, 127, 186, 243, 301, 390, 516, 585, 612, 673; Unemployment Claims as Affected by Holidays with Pay, 361
Boilermakers' Society, Membership and Benefit Data, 8, 128, 390, 516, 656; Mr. Hodgson on the Organisation of Youths into Appropriate Unions, 516; on the Need of Subsidies for Shipbuilding to Meet Foreign Competition, 656
Bolivia, Compulsory Pensions for Rail and Tram Workers, 361
Brownlie, J. T., the Late, 473, 585
Building Trades, National Federation of Operatives, Mr. Hicks on Favourable Situation in Relation to Defence Works, 38; Labour Dilution Question, 39; Sir W. Citrine on Union Leaders' Responsibility for Decisions, 39; Proposed Re-examination of Wages Conditions, 39; Unorganised Building Labourers, 39; Mr. Fawcett on Unemployment in the Building Industry, 128; Building Trade Union, T.U.C., Resolution for Reform of Workmen's Compensation Law, 273
Cleveland Blast Furnacemen's Wages, 133, 507
Cleveland Ironstone Miners' Wages, 507
Clothing and Occupation, German Society for the Protection of Labour and, 701
Coal Mines. See *Mining Industry* (below)
Constructional Engineering Union and Allied Employers, Improved Wage Conditions, 8
Cost of Living, Reduction of, A.E.U. Demand for Government Policy, 186
Defence. See *Armament Programme* (above)
Denmark, Legislation Defining Relations of Employers and Employees in Private Undertakings, Anonymous Advertising Question, 186; New Apprenticeship Law; Conditions, and Application by Apprentices' Council, 673
Dilution of Labour, Building Trades, 39; A.E.U., Comments on Dilution, 82, 273, 344; A.E.U. on Dilution in Relation to Skilled Labour, 701
Diseases, Occupational, German Labour Society's Investigations on Diseases Resulting from Sand Blasting and Grinding, 82; French Workers' Demand for Notification of Contents of Toxic Compounds, 129; Uruguay, Ministerial Decree for Labelling of Toxic Products, 129; South Wales Miners, Proposed Abolition of Clause in Silicosis Compensation Scheme, 273; I.L.O. Silicosis Report, 543; Italy, Reports on Compensation for Industrial Diseases, 473, 557; French Statistics, 656; United States, Rock Drilling, Enforcement of Industrial Code for Control of Silica Dust, 759
Disputes, Industrial, T.U.C., and Union's Views on Financial Aid Schemes, 731
Dockyard Founders, Wage Improvements, 417
Education, Technical and Commercial, of Employees, International Congresses, 473
Electrical Industry, Electricity Supply Industry, Claim for Increased Wages, 39, 82; Electrical Trades Union, Nationalisation of Supply Industry, 82, 186; Electrical Trades Union, Reasons for Declining to Co-operate with Armament Programme, 99; on Elimination of Amateurs from the Industry, 99; 40-Hour Week Wage, 99; Electrical Trades Union, Resolution Relating to Electricity Distribution Question at Blackpool T.U.C., 273
Electrical Trades Union. See *Electrical Industry* (above)
Electricity Services, E.T.U., on Nationalisation of, 82, 186
Employers' Federation, Discussion with A.E.U. and Foundry Workers and Joint Trades Movement on Wages and Working Conditions Claims, 390
Employment Exchange Reports, 8, 127, 186, 243, 301, 390, 417, 516, 556, 612, 673, 759
Employment, Insured Persons in, Labour Ministry Reports, 38, 186, 301, 417, 556, 612, 673
Engineering Industry, A.E.U. on Socialisation of, 186
Engineering Union, Amalgamated, Membership and Benefit Data, 82, 215, 344, 444, 585, 701; Morecambe Meeting of National Committee, Comments on Dilution, on Unemployment, and on Basic Minimum Pay Rates, &c., 82; Joint Movement Opposition to Relaxation of Existing Regulations in Favour of Re-armament, 128; Resolutions at T.U.C. Meeting at Blackpool for Socialisation of Engineering Industry and on Reduction of Cost of Living, 186; Comments on Public Accounts Reports and on Economy in the Purchase of Armament Equipment, 215; Railway Lines Committee, Discussion of Railway Shopmen's Demands and Question of Short-time Working, 242; Mr. Little on Dilution and Failure of Government Pledges, 273; T.U.C. Blackpool, Resolutions Proposed by A.E.U. on Socialisation of Engineering Industry and Reduction of Cost of Living, 273; Comments on Unemployment of Members and Shortage of Skilled Labour in Relation to Dilution, 344, 701; Meeting of Foundry Workers and A.E.U. with Employers' Federation re New Wages and Working Conditions Claims, 390, 656, 701; Overtime and Nightshift Agreement Addendum, 444; Comments on the Crisis in Relation to Industry and Unemployment, 444; Tribute to the late J. T. Brownlie, 585; Ruling Relating to Notification to Workers of Overtime Requirements, 585; Comments on Industrial Conscription in Relation to Unemployment, 585
Eye-Screening Regulations for Operations under Factories Act, 99
Factories Act, 1937, Regulations and Orders, 82, 99, 157; Eye-Screening Regulations in Specific Processes, 99
Factories, Chief Inspector's Remarks on Workers' Lack of Interest in Safety, 215
Founders, H.M. Dockyard, Wage Improvements, 417
Foundry Workers and A.E.U., Discussion with Employers' Federation on Wages and Working Conditions Claims, 390, 656, 701
France, Application of 40-Hour Week Act, Order Sanctioning Extra Days at Overtime Pay, 82; Workers' Demands for Labelling of Industrial, &c., Products and Toxic Compounds, 129; Decree Authorising Unlimited Overtime in National Defence-Industries, and 100 Hours per Annum in Other Industries, 301; Premier's Forecast with Regard to Working Hours and Overtime, 390; Arbitration Award in Paper Industry, Concerning Recovery of Lost Time, 557; Public Employment Exchanges Committees, Apprenticeship Rules Question, 557, Public Servants' Federation Demands, 612; French Labour Troubles, Political Aspect of, 656; Census of Unemployed Persons, Official Statistics, Percentage of Specialists and Elderly Persons, 656; Occupational Disease Statistics, 656,; Holidays, Seasonal, Decree Regulating Rotation to Avoid Simultaneous Closing of Similar Industrial Undertakings, 731; Decree Relating to Unjustifiable Refusal to Work Overtime, Provisions and Penalties, 731; Proposed Business Research Institute, Aim and Duties, 759
Friendly Societies' Report, 1937, 301
Friendly Societies, Union Data, 516
Furnishing Trades Association, T.U.C. Resolution of Statutory Enforcement of Working Hours, 273
General Federation of Trade Unions, Membership and Benefit Data, 215, 585; Mr. Appleton's Comments on Disqualification from Benefit under Unemployment Insurance Act, 215; Retirement of Mr. Appleton, Minute of Appreciation, 585
General and Municipal Workers, Resolution on Enforcement of Agreements Between Employers' Associations and Trade Unions 8; Mr. Dukes on Progress of Union and on Membership and Compensation Recoveries, 273; T.U.C. Resolution Opposing Entry of Foreign Firms Having Unsatisfactory Practices, 344
Geneva. See *International Labour Office* (below)
Germany, Sand Blasting and Grinding, Labour Protection Society's Investigations in Relation to Silicosis and Pneumoconiosis, 82; Employment Statistics, 99; Decrease in Unemployment, 99; Decree for Conscripting Labour and for Regulating Employment in all Economic Branches, 99; Working Hours and Wages, Close Connection with War Economy, 157; Supply of Italian Building Operatives from Italy, 215; Industrial Accident Insurance, Features of, 243; Record Production of Iron and Steel, but Deficit in Supplies for Ordinary Purposes, 361; Inquiry into Unemployment among Persons with Limited Capacity for Work, 361; Decree for Compulsory Acceptance by Nationals of Assigned Employment, Scope and Methods, 390; Germany's Economic Situation and the Cyclic Theory, 417; Diminishing Unemployment Figures, 473; Distribution of Available Labour under Four-Year Plan, 516, 759; Training Plan for New Skilled Labour, 544; British Export of Scrap to Germany, 612; Employment Figures and Demand for Labour, 612; Lack of Technically Expert Teachers and Students of Universities, 612; German Society for the Protection of Labour, Discussion on Occupation and Clothing, 701
Health Ministry, Poor Relief Returns, 99, 390, 444; Applications and other Data under New "Black-Coat" Pension Scheme, 128; National Association of Trade Unions Approved Societies, Submission of Social Service Resolutions, 673
Holland, Proposed Legislation Relating to the Employment of Women and Young Persons, Prohibitions, 557
Hours of Work, International Labour Conference and Proposed Conventions to Generalise Principles in Reduction of Hours of Labour, 8; Belgium, Statistics of Overtime, 39; Glasgow Fair, Holiday Pay for Iron and Steel Workers, 73; Holidays with Pay Bill, 82, 99; N.U.R. Demands, Including Holidays with Pay, 82; France, Order Sanctioning Extra Days, under 1936 Decree, at Overtime Pay, 82; Electrical Trades Union, 40-Hour Week, 99; Mineworkers' Federation, Resolutions that Working Hours be Reduced and on Emergency Overtime, 128; Germany, Relationship Between Hours of Work and Wages and War Economy, 157; Roumania, Enforcement of Holidays with Pay Grants to Employees, 157; Holiday Payments, Effect on Unemployment Benefit Claims, 186; Sweden, Holidays-with-Pay Legislation, 186; Portugal, Holidays-with-Pay and Military Service Regulation, 186; Italy, Compensation for Accidents, Methods of Assessing Daily Wages, 187; International Metal Workers' Federation, Grounds of Claim for 40-Hour Week, 243; Furnishing Trades Association, T.U.C., on Statutory Enforcement of Working Hours, 273; Seamen, National Union of, Proposed Claim for Holidays with Pay, 301; Mr. Butler (I.L.O.) on the 40-Hour Week, Problem of General Adoption, 344; T.U.C. Demands Relating to Hours of Work and Adoption of Spread-Over Principle for Holidays, 344; Unemployment Benefit Claim Affected by Holidays with Pay, Rulings; 361; France, Premier's Forecast in Relation to Working Hours and Overtime, 390; United States Holidays with Pay, 417; United States, Bureau of Statistics, Study of Agreements, Overtime Provisions, 417; A.E.U., Overtime and Nightshift Agreement, Addendum, 444; Hungary, Partial Introduction of Eight-Hour Day, 445; Holidays with Pay, Cost to Industrial Workers, 473; 1939 I.L.O. Conference on Reduction of Hours in Rail Transport, 543; Statistics, Labour Ministry, of Wage Earners Having Holidays with Pay, 556; Textile Trade Unions and Employers, Discussion of Holidays with Pay, 557; Proposed Revision of Unemployment Insurance Acts in Relation to Holidays with Pay, 557; Italy, Inapplicability of 40-Hour Week, Decree to Chief Technicians, &c., 557; Lost Time on Holiday Cases, Arbitration Awards, 557; A.E.U. and the Ruling Relating to Prior Notification to Workers of Overtime Requirements, 585; United States, Hours of Work in Private Shipyards, 612; United States Federal Wage-Hour Law, 656; Australia, 44-Hour Week in Railway Workshop Scheme, Adverse Ballot, 656; Roumania, Royal Decree Modifying Section 49 of Act of 1929, Relating to Holidays with Pay, 673; United States, Navy Yard Working Hours, &c., 701; United States Labour Department on Latin-American Legislation for Hours of Work and Overtime and for Pay Rates, 701; Luxembourg International Transport Workers' Conference on a 40-Hour Week Without Loss of Pay, 701; Young Persons Employment Act, 1938, Hours of Work Provisions, 731; France, Decree to Regulate Rotation of Holidays to Avoid Closing of Similar Industries, 731 France, Decree Relating to Unjustifiable Refusal to Work Overtime, Provisions and Penalties, 731
Hungary, Partial Introduction of Eight-Hour Day in Industry, 445
Imperial Chemical Industries, Wages Question, 731
Incomes and Rent, Relation of, Discussion by Economic Committee of General Council of T.U.C., 273
India, Bombay, Apprentices Training Clause in Contracts, 160; Department of Industries Apprenticeship Scheme, 585
India, Relief Employment for Distressed Areas, 276
Industrial Situation, 38, 301, 417
Industry, Proposed Discussion of Medical Problems in, 701
Industry, Public Control in, 128; Committee of Scientists and Trade Unions and Problems of Industry, 417
International Federation of Trade Unions, Affiliation of New Zealand, 157; United States Meeting, 445
International Labour Office, I.L.O. Conference and Proposed Conventions to Generalise Principles of Reduction of Working Hours, 8; World Employment and Unemployment Statement, 991; Mr. Butler on the Problem of the 40-Hour Week, 344; London Meeting, Address by Mr. E. Brown, 543; Mr. F. W. Leggett on Progress of the Organisation, 543; Silicosis Report, 543; 1939 Conference on Reduction of Hours in Rail Transport, 543; Observance of I.L.O. Conventions by Countries Ratifying Them, 544; Young Persons, Employment Out of School Hours, 544; United States, Factors Affecting Employment of Elderly Workers, 544; World Coal-Mining Industries, Economic and Social Conditions, 731
International Metal Workers' Federation, Grounds of Claim for 40-Hour Week, 243
Iron and Steel Trades Confederation, on the Adverse Results of Technological and Mechanical Developments with Reference to Tin-Plate and Steel-Sheet Industries, 273
Ironworkers' Wages, 191
Italy, Compensation for Accidents, Method of Assessing Daily Wages, 187; Supply of Italian Building Operatives to Germany, 215; Report on Compensation for Occupational Diseases, 473; Forty-Hour Week Decree, Inapplicability to Chief Technicians, &c., 557; Industrial Medicine Congress, Report on Occupational Diseases, 557; Industrial Workers' Christmas Bonus Agreement, 585
Japan, Control of Commodity Prices, 157; Registration of Vocational Qualifications under General Mobilisation Act, 301; Withdrawal of Undergraduates from Technical Schools, 445; Disabled Soldiers' Employment Scheme, 612
Joint Trade Movement and Employers' Federation, Discussion on Wages and Working Conditions Claims, 390
Juvenile Labour, Question of Employment of Young Persons Out of School Hours, 544; Holland, Proposed Legislation Prohibiting Employment on Certain Work, 557;

Trade Societies, &c.—*continued.*

United States, Report on Child Labour in Southern States, 701; Young Persons Employment Act, 1938, Hours of Work Provisions, 731
Labour Management Conference, Need for Technical Training, 344
Labour Ministry Reports, 8, 127, 186, 243, 301, 390, 516, 556, 585, 612, 673, 759
Labour Notes, 8, 38, 81, 99, 127, 157, 186, 215, 242, 273, 301, 334, 361, 390, 417, 444, 473, 516, 543, 556, 585, 612, 673, 701, 731, 759
Latin America, Legislation for Hours of Work and Overtime, and Pay Rates, 701
Locomotive Engineers and Firemen. See *Railways* (below)
Luxembourg, International Transport Workers' Conference on 40-Hour Week, 701
Lyons Group, Proposed Discussion of Medical Problems in Industry, 701
"Man and Metal," Comments on Steel Trade Set-Back, 99, 361, 473; on Holidays with Pay, 242; on the Depression in the Iron and Steel Industry, 361; on the Operation of the Steel Trade and the Export of Scrap to Germany, 612; on the Ineffectiveness of General Strikes, 731
Medical Problems in Industry, Proposed Discussion of, 701
Mining Industry, Mineworkers' Federation, Proposed Amalgamation of Unions, 99, 128; Mr. Jones on Miners' Inadequate Proportion of Increased Cost to Meet Wage Advances, 128; Conference Resolutions, 128; Coal Export Trade, Government and Proposed Levy on Marketable Coal, 157; South Wales Miners' Pension Scheme, Difficulties in Application, 273; South Wales Miners, Proposed Abolition of Clause in Silicosis Compensation Scheme, 273; I.L.O. Publication on Conditions in World Coal-Mining Industries, 731
Motion Studies at Warsaw Research Institute, 585
National Union of Railwaymen. See *Railways* (below)
New Zealand, Affiliation to International Federation of Trade Unions, 157; Public Works Construction in Relation to Government Finance, 445
Patternmakers' Association, Membership and Benefit Data, 99, 242, 361, 516, 612; Government Dockyard Patternmakers' Wages Award, 99; Increase in Unemployment, 242
Pension and Other Benefit Schemes, Morris Works, 39; "Black-Coat" Pension Scheme, Health Ministry Figures, 128; South Wales Miners' Scheme, Difficulties in Application, 273; National Union of Clerks, Pensions and Participation in Administration, 344; Bolivia, Compulsory Pensions for Railway and Tramway Workers, 361; Russia, Pensions to Aliens, 473
Poland, Unemployed Workers, Reduction in Number, 242; Research Institute for Social and Occupational Surgery, 385
Porters' Strike, London Railway Stations, 473
Portugal, Holidays with Pay and Military Service Regulation, 186
Post Office Workers, Engineering Union Conference, Mr. Garner on Low-Wage Standards, 9; Assistant Director-General's Reply to Wages Claim, 473; Civil Service Arbitration Tribunal's Wages Award, 731
Railways, N.U.R., on the Need for Single Co-ordinated National Transport Service, 9, 38; Question of State Ownership and Democratic Control of Rail and Road Transport, 38, 82; N.U.R. Locomotive Firemen and Railway Clerks, Claims for Increased Wages and Improved Conditions, 39, 656; N.U.R. Demands, Including Minimum Wages and Holidays with Pay, 82, 186; N.U.R. on Inequity of Existing Workmen's Compensation, 82; N.U.R. on General Unemployment, with Suggested Remedies, 82; Engineers and Firemen on the Dangers of Absolute Amalgamation, 82; Railway Clerks' Association, Amalgamation Questions, 186; R.S.N. Tribunal's Award on Improved Pay Demand, Additions to Signalmen's Pay, 186; Signalmen's Rejection of Staff National Council's Findings on Wages and Hours, 390; Companies' Reply to Railwaymen's Demands, 473; London Railway Porters, Strike, 473; Railway Shopmen's Claims' 656
Rent in Relation to Income, Discussion by T.U.C., 273
Road Haulage Wages Boards, 215
Roumania, Enforcement of Holidays with Pay Grants to Employees, 157; Report of Labour Ministry on Infringements of Labour Legislation, 557; Holidays with Pay, Royal Decree, 673
Russia, Collective Farms, Reorganisation of Labour Recruiting System, 417; Regulations Affecting Pensions to Aliens, 473
Scholarships, Oxford and Cambridge Universities, Extra-Mural Studies, 673
Scientific Advisory Committee, Examination of Industrial Problems, 417
Seamen, National Union of, Improved Rations Question, 99; Proposed Claim for Holidays with Pay, 301
Sheet-Metal Workers' Wage Increase, 656
Sheffield Engineering Operatives, Unofficial Strike, 656
Shipbuilding Employers' Federation, Central Board, Changes of Officers, 585
Shipbuilding Industry, Decline in Employment, 701
South Wales Miners. See *Mining Industry* (above)
Special Areas, Progress of, 160
Strikes, General, "Man and Metal" on Ineffectiveness, 731
Strike Statistics, 8, 128, 243, 390, 516, 612, 759
Strikes, Unauthorised, Mr. Clynes' Views, 544
Sweden, Economic and Industrial Situation, Decline in Employment, 157; Annual Holidays With Pay Legislation, 186; Penal Code Against Picketing, 585; Agreement Between Employers and Unions Regarding Trade Disputes, 759
Textile Trade and Holidays With Pay, 557
Theatrical and Cinema Employees' Association, Proposed National Charter, 157
Toxic Products, Labelling of, French Workers' Demand, 128; Uruguay, Ministerial Decree, 129
Trades Union Congress, Blackpool Meeting, Resolutions and Demands of Component Unions, 186; Workmen's Compensation Appeal to Unions for Data as to Alleged Irregularities in Practice, 215; on Prime Minister's Objection to Legislation Affecting Trade Union Practices and View of Events at Close of Armament Programme, 242; Electrical Trades Union, Proposed Resolution on Electricity Distribution, 273; A.E.U. Proposed Resolutions on Socialisation of Engineering Industry and on Reduction in Cost of Living, 273; Furnishing Trades Association's Resolution for Enforcement of Working Hours, 273; Building Trade, Workers' Resolution on Reform of Workmen's Compensation Law, 273; Rent in Relation to Income, Discussion by Economic Committee of General Council, 273; Presidential Address, T.U.C., Blackpool, Aims, Achievements, and Youth Charter, 301; Rejection of Motion to Refer Back to G.C. the Armament Part of Report, 344; A.E.U. Remarks on Armaments and the Dilution Question, 344; Emergency Resolution on Large-Scale Unemployment, 344; Resolution by National Union of Clerks as to Pensions and Participation in Administration, 344; Mr. Butler (L.L.O.) on the 40-Hour Week, 344; American Federation of Labour Delegates on the Causes of Depression in U.S., 344; General and Municipal Workers' Resolution Opposing Entry of Foreign Firms Having Unsatisfactory Practices, 344; Cost of Living Resolutions and Hours of Work, 344; Adoption of Principle of Spread-Over of Holidays, 344; T.U.C. Committee for Examining Practical Problems of Industry in Co-operation with Scientists, 417; Methods of Financing National Disputes, 731; Workmen's Compensation, Desired Reform, 759
Transport and General Workers' Union, Public Control in Industry, 129; Financial Situation, 186; Lydney Power Workers' Branch, Mr. Deakin on Improved Outlook for Workpeople, 242; Mr. Deakin on the Strike Menace, 390; Mr. Bevin on the United States Labour Movement and Unification, 612; Year's Activities, 731
Unemployment, General, I.L.O. International Statistics, 99, 445; T.U.C. on Large-Scale Unemployment, 344; U.S.A. Employment Census, 1937, 361
Unemployment Insurance Act, 1935, Disqualification Section, 215, 417
Unemployment Insurance Acts, Proposed Revision in Relation to Holidays With Pay, 557
Unemployment Reports, 8, 38, 82, 186, 215, 243, 301, 390, 417, 516, 556, 585, 673, 701, 759
Unions, Labour Ministry Statistics, 516
Union Leaders, Sir W. Citrine on Responsibility for Decisions, 39
United States, U.S. Steel Corporation, Discussion of Wages Reduction to Assist Business Recovery, 8; Railway Managements, Proposed Negotiations for Wages Reduction, 8; High Earnings of American Steel Workers, 8; Bureau of Mines National Safety Competition, 99; Unemployment Insurance Agencies and Payment of Interstate Benefit Plan, 157; "Labour Inspection Manual," Embodying Labour Protection Practices, 215; Federation of Labour and Industrial Organisation, 273; International Machinists on Maltreatment of Members by Industrial Organisation, 273; Accidents and Employment in Coke Industry, 361; Unemployment Census, 1937, 361; Holidays with Pay, 417; Bureau of Statistics' Study of Agreements, Overtime Provisions, 417; Opposition to Centralised Authority, 445; Accident Statistics and Data, 516; Railway Industry, International Machinists' View, 516; Factors Affecting Employment of Elderly Persons, 544; Association of American Railroads, Concession in Relation to Wage-Cut, 556; Mr. Bevin on United States Labour Movement and Unification, 612; Private Shipyards, Hours of Work in, 612; Fair Labour Standards Act, Provisions, 656, 673, 759; Navy Yard Earnings and Working Hours, 701; Labour Department on Latin American Legislation for Hours of Work, Overtime and Pay Rates, 701; Child Labour in Southern States, Report, 701; Rock Drilling, Enforcement of Silica-Dust Control, 759
Universities, Oxford and Cambridge, Extra-Mural Scholarships, 673
Uruguay, Ministerial Decree Regulating Labelling of Toxic Products, 129
Wages, Fluctuation of, 8, 127, 243, 390, 516, 612, 759
Wages and Hours of Work in Germany, 157; United States Fair Labour Standards Act, 656
Women Workers, Proposed Legislation in Holland, 557
Woodcutting Machinists' Agreement, Paid Holidays, 344
Woolwich Arsenal Workers' Pay Question, 301
Working Hours, Labour Ministry's Report, 243
Workmen's Compensation, Prime Minister on Proposed Modification of Existing Legislation, 9; N.U.R. on Inequity in Existing Compensation Law, 82; Mineworkers' Federation Resolution on New Legislation, 128; T.U.C. Appeal to Unions for Data as to Alleged Irregularities in Practice, 215; Building Trade Union Resolution at T.U.C. on Reform of Compensation Law, 273; Royal Commission, 612, 731; T.U.C. and Desired Reform, 59
Youth Charter, Comments on, 301

Tramways:

Tramway Equipment (Catalogue), 120

Turbines. See *Engines and Boilers*

Universities. See *Education*

Vehicles. See *Motor Cars; Railways*

Warships. See *Naval*

Waterworks, &c.:

Hyderabad, Warangal Water Supply, 448
Water Supply and Air-Raid Precautions, *Erratum*, 656

LITERATURE.

ACCIDENTS, Electrical, and their Causes, 1937, 708
Administration, Business, for Engineers, by Dr. C. F. Harding and Prof. D. T. Canfield, 167
Aeronautics, Aircraft Production, New Journal, 616
Aeronautics, Handbook of, Vols. I, II and III. Third and Revised Edition, 283
Aeronautics, Wind-Tunnel Tests on Design of Cabins, R. & M. No. 1811, 307
Agricultural Industry, Electricity in, by R. B. Matthews and R. H. Drilhon, 640
Air Conditioning, Heating and Ventilating Fundamentals, by Prof. W. H. Severns, 167
Air Conditioning in Summer and Winter, by R. E. Holmes, 610
Air-Raid Precautions, British Steelwork Association's Booklets on, 420
Air-Raid Precautions, Structural Problems in, 559
Air-Raid Protection, Bombs, High-Explosive, Incendiary and Gas, by Prof. J. B. S. Haldane, 776
Aircraft Bench Fitter, by W. S. B. Townsend, 88
Aircraft Production, New Journal, 616
Alignment Charts, Making of, by M. G. Van Voorhis, 58
Alloys, Copper in Cast Steel and Iron, 429
Alloys, Magnesium, Properties (VDI Papers), 146
Almanacs and Calendars, 393, 706, 762
Aluminium Alloys, High-Strength, Data on, 12
Aluminium Industry, Market Control in, by Prof. D. H. Wallace, 182
American Society of Mechanical Engineers, Transactions. High-Temperature High-Pressure Stations, 451
American Society for Testing Materials, Index to Standards and Tentative Standards, 146
Annuals and Reference Books, 69, 141, 170, 187, 341, 686, 706, 762
Apparatus, Chemical, Progress of: Materials, Vols. I and II, Edited by A. Bräuer and J. Reitstötter, 661
Applied Workshop Calculations, by W. A. J. Chapman, 777
Apprenticeship, Satisfaction *versus* Safety in a Career, 361
Arc-Welding Handbook, by K. Meller, 58
Army Vocational Training Centre, Aldershot, Souvenir Volume, 686
Asphalt and Allied Substances, by H. Abraham, 429
Atmospheric Pollution, Report, 341
Autographic Indicators for Internal-Combustion Engines, by J. Okill, 661
Aviation. See *Aeronautics* (above)

BALL Bearings, by W. Jürgensmeyer, 611
Barrages, by Prof. L. Escande, 205
Barrages, Underwater, Effect on Water Surface and Soil Sinking, by Dr.-Ing. H. Straub, 88
Bearings, Ball and Roller, by W. Jürgensmeyer, 611
Birmingham, Industrial, 247
Boilers, Fusion-Welded, British Corporation Register of Shipping Rules for, 189
Boilers, by Dipl.-Ing. D. W. Rudorff, 697
Bombs, High-Explosive, Incendiary and Gas, by Prof. J. B. S. Haldane, 776
Books, New, Notes on, 57, 88, 146, 175, 205, 226, 311, 342, 429, 484, 661, 776
Books Received, 12, 42, 72, 102, 132, 160, 190, 216, 246, 276, 304, 334, 364, 392, 420, 448, 476, 506, 534, 560, 588, 616, 646, 676, 704, 734, 762
Books, Scientific and Technical, Standard, British, List of, 247
Boulder Dam, Model Studies of, 15
Bridge Design, Reinforced-Concrete, by C. S. Chettoe and H. C. Adams, 697
British Cast Iron Research Association, Index to Bulletin, 321
British Corporation Register of Shipping, Rules for Fusion-Welded Boilers, &c., 189
British Manufacturers, F.B.I. Register of, 1938-1939, 170
Brookhirst Switchgear, Ltd., Satisfaction *versus* Safety in a Career, 361
Building Materials, Freezing of, Report on, 291
Building Research Board Report, 1937, 105
Buildings, Use of Reinforced Concrete in, Code of Practice, 289
Burma and India, Law Relating to Electrical Energy in, by J. W. Meares, 167
Business Administration for Engineers, by Dr. C. F. Harding and Prof. D. T. Canfield, 167
Business and Engineering, English in, by Profs. B. W. Stevenson, J. R. Spicer and E. C. Ames, 640
Business Problems, Modern, by Prof. A. Plant and others, 209

CABINS, Design of, Wind-Tunnel Tests on, R. & M. No. 1811, 307
Calcul des Réactions d'Inertie qui Sollicitent le Bâti et la Fondation d'une Machine à Piston, by Prof. A. J. Jadot, 88
Calendars and Almanacs, 393, 706, 762
Cancer, Cause of, by D. Brownlie, 57
Careers, Satisfaction *versus* Safety, 361
Carron Company, History of the, 247
Cast Iron Research Association, British, Index to Bulletin, 321
Cement and Reinforced Concrete, 342
Cement Standards, A.S.T.M. Pamphlet, 360
Charts, Alignment, Making of, by M. G. Van Voorhis, 58
Chemical Apparatus, Progress of Materials for, Vols. I and II, Edited by A. Bräuer and J. Reitstötter, 661
Chemical Works, Safety Rules in, 276
Chemistry, Inorganic, Gmelins Handbook, Section 59, Part C.—Hardness of Iron, 146
Chemistry, Inorganic, Handbook of, Second Part: Iron and Its Alloys. Edited by Drs. R. Abegg, Fr. Auerlach and J. Koppel, 206
Chemistry, Modern Rubber, by Dr. H. Barron, 92
Chemistry Research Board Report, Triennial Period, 1937, 395
Chromium Plating, Historical Survey, 433
Circuits, Alternating-Current, Automatic Protection of, by G. W. Stubbings, 226
Civil Engineer's Reference Book, Trautwine's, 1937, 206
Coal Utilisation, Illinois University Bulletin, 424
Coils, Air-Core, and Reactors, by J. Hak, 771
Coke: A Problem of Fuel Refinement, by Drs. H. Kurz and F. Schuster, 640
Colleges, Technical, of South Africa, 248
Colonial Timbers, Leaflet on, 506
Combustion, Flames and Explosions of Gases, by Drs. B. Lewis and G. von Elbe, 455
Commerce, Modern Business Problems, by Prof. A. Plant and others, 209
Computer for Vee-Rope Drives, 736
Concrete, Reinforced, Bridge Design, by C. S. Chettoe and H. C. Adams, 697
Concrete, Reinforced, in Buildings, Code of Practice for, 289
Concrete, Reinforced, and Cement, 342
Concrete, Reinforced, Piling, by F. E. Wentworth-Sheilds and W. S. Gray, 455
Conveying Machinery, by W. H. Atherton, 91
Copper in Cast Steel and Iron, 429
Corrosion in Iron and Non-Ferrous Metals, by A. Siegel, 176
Corrosion of Metals, by Dr. W. Wiederholt, 176
Costing, Dictionary of, by R. J. H. Ryall, 146
Costs and Tariffs in Electricity Supply, by D. J. Bolton, 640
Cunard White Star Liner "Queen Elizabeth," Brochure on Launch, 646
Cutting Fluids, Leaflet on, 477

DAM, Boulder, Model Studies of, 15
Dams, Gravity, by Prof. L. Escande, 205
Dams and Control Works, Second Edition, U.S. Department of the Interior, 182
Davies, David, of Llandinam, a Biography, by I. Thomas, 776
Design, Machine, Fundamentals of, by Profs. C. A. Norman, E. S. Ault and I. F. Zarobsky, 696
Designs, Trade Marks and Patents, by C. S. Parsons, 445, 455
Diaries and Pocket Books, 762
Dictionary of Costing, by R. J. H. Ryall, 146
Dictionary, Technical and Engineering, Modern Spanish-English and English-Spanish, by R. L. Guinle, 88
Dictionary of Wood, by E. H. B. Boulton, 226
Diesel Engines, High-Speed, Maintenance of, by A. W. Judge, 484
Diesel Handbook, by J. Rosbloom, 57
Diesel Operators' Manual, by J. W. Anderson, 661
Direct- and Alternating-Current Potentiometer Measurements, by D. C. Gall, 210
Directory of Paper Makers, 1938, 187
Directory, Universal, of Railway Officials, and Railway Year Book, 1938-1939, 170
Diseases, Occupational, Cause of Cancer, by D. Brownlie, 57
Docks, Southampton, Southern Railway Handbook, 103; Centenary Pamphlet, 655
Drawing, Machine, for Students, by J. F. Pryer, 206
Drawing-Office and Shop Students, Mathematics for, by H. M. Keal and C. J. Leonard, 776
Drives, Vee-Rope, Computer for, 736
Drums, Welded, Schedule of Examinations and tests, 256
Dry Rot in Wood, 463
Drying of Timber, by R. G. Bateson, 206
Dwellings, The Evolving House. Vol. III. Rational Design, by A. F. Bemis, 284

ECONOMICS, Modern Business Problems, by Prof. A. Plant and others, 209
Economy, World, and the Northern Countries, Denmark, Finland, Iceland, Norway and Sweden, 92
Education, First Year Engineering Science, Mechanical and Electrical, by G. W. Bird, 57
Einführung in die technische Schwingungslehre, Band I. Einfache Schwinger, by Dr.-Ing. H. K. Klotter, 641
Eisenlose Drosselpulen, by J. Hak, 771
Elastic Properties of Non-Ferrous Metals and Alloys, British Non-Ferrous Metals Research Association Report, 485
Electric Power Transmission, Principles of, by Prof. L. F. Woodruff, 661
Electric Refrigeration, Household, by J. F. Wostrel and J. G. Praetz, 356
Electrical Accidents and their Causes, 1937, 708
Electrical Energy in India and Burma, Law Relating to, by J. W. Meares, 167
Electrical Engineering, Experimental, by E. T. A. Rapson, 342
Electrical Engineering Practice, Fifth Edition, Volume I, by J. W. Meares and R. E. Neale, 770
Electrical Engineering Science, First Year, by G. W. Bird, 57
Electrical Installations, Earthing to Water Pipes, Regulations for, 165
Electrical Manufacturing, Organisation of, 436
Electrical Students, Mathematics for, by H. N. Keal and C. J. Leonard, 776
Electricité dans les Exploitations Agricoles, by R. B. Matthews and R. H. Drilhon, 640
Electricité et Magnétisme, by Prof. G. Jochmans and F. Descans, 455
Electricity in the Agricultural Industry, by R. B. Matthews and R. H. Drilhon, 640
Electricity, Automatic Protection of Alternating-Current Circuits, by G. W. Stubbings, 226
Electricity Commissioners, Eighteenth Annual Report, 1937-38, 510
Electricity and Magnetism, by Prof. G. Jochmans and F. Descans, 455
Electricity Supply, Costs and Tariffs in, by D. J. Bolton, 640
Electrotechnical Vocabulary, International, 684
Encyclopedia, Scientific, Van Nostrand's, 176
Engesser-Vianello Process, Applied to Curved Rods subjected to End Loads, by Dr.-Ing. A. Schleusner, 777
Engines, High-Speed Diesel, Maintenance of, by A. W. Judge, 484
Engines, Internal-Combustion, Autographic Indicators for, by J. Okill, 661
Engines, Internal-Combustion, Vol. I, by Dr. D. R. Pye, Second Edition, 183
Engines, Internal-Combustion, by Prof. H. E. Degler, 357
Engine, Oil, Diesel, Handbook, 57
Engine, Oil, Diesel, Operators' Manual, by J. W. Anderson, 661
Engine, Reciprocating, Inertia Calculations Relating to Construction and Foundations, by Prof. A. J. Jadot, 88
Engineers, Business Administration for, by Dr. C. F. Harding and Prof. D. T. Canfield, 167.
Engineers' Guild, Pamphlet on History, 688
Engineer, Works, by W. R. J. Griffith and W. O. Skeat, 697
Engineers' Year Book, Kempe's, 1939, 636
Engineering and Business, English in, by Profs. B. W. Stevenson, J. R. Spicer and E. C. Ames, 640
Engineering Law, by R. E. Laidlaw and Prof. C. R. Young, 183
Engineering Metallurgy, by Profs. B. Stoughton and A. Butts, 312
Engineering Science, First Year; Mechanical and Electrical, by G. W. Bird, 57
Engineering Students, Mechanics for, by G. W. Bird, 312
Engineering, Vibration Problems in, by Prof. S. Timoshenko, 226
English in Business and Engineering, by Profs. B. W. Stevenson, J. R. Spicer and E. C. Ames, 640
Evolving House, Vol. III. Rational Design, by A. F. Bemis, 284
Experimental Electrical Engineering, by E. T. A. Rapson, 342

FACTORIES Act, 1937, by L. Maddock, 354
Factories Act, 1937, Norwich Union Society's Pamphlet on, 226
Factories, Lighting in, Fourth Report of Departmental Committee, 650
Factories and Workshops, Annual Report of Chief Inspector (1937), 193
Federation of British Industries Register of British Manufacturers, 1938–1939, 170
Ferro-Concrete. See *Concrete, Reinforced*
Fitter, Bench, Aircraft, by W. S. B. Townsend, 88
Fixtures and Jigs, by F. H. Colvin and L. L. Haas, Third Edition, 771
Fluids, Cutting, Leaflet on, 477
Fluids, Homogeneous, Flow through Porous Media, by Dr. M. Muskat, 88
Food Investigation Board Report, 1937, 308
Fortschritte des chemischen Apparatewesens: Werkstoffe, Volumes I and II, edited by A. Bräuer and J. Reitstötter, 661
Foundry Sands, by T. R. Walker, 776
Freezing of Building Materials, Report on, 291
Fuel, Motor, Principles of Preparation and Application, Vol. I, by Prof. A. W. Nash and Dr. D. A. Howes, 661
Fuel, Oil, in American Railway Operation, Proceedings of American Railway Fuel and Travelling Engineers' Association, 136
Fuel Research Board, Report to March 31, 1938, 765
Furnace Technology, Modern, by H. Etherington, 697

GARAGEN in ihrer Bedeutung für Kraftverkehr und Städtebau, by Prof. Dr.-Ing. G. Müller, 168
Garages in Relation to Motor Traffic and Town Planning, by Prof. Dr.-Ing. G. Müller, 168
Gas Analysis, by A. McCulloch, 661
Gas, Combustion, Flames and Explosions of, by Drs. B. Lewis and G. von Elbe, 455
Gasworks Laboratory Handbook, Part I: Investigation of Solid and Fluid Materials, by Dr. F. Schuster, 342
Gazetteer, Railway and Commercial, Great Britain, 187
Gears, Spur, Principles of Measurement, by Prof. Dr. G. Berndt, 226
Generators, Steam, by Dipl.-Ing. D. W. Rudorff, 697
Glasgow International Engineering Congress, Transactions, 484
Glass Working for Luminous Tubes, by H. Eccles, 58
Gmelins Handbuch der anorganischen Chemie. Part C. Hardness of Iron, 146
Gold Mining, Underground Practice in, by B. Beringer, 430
Gravity Dams, by Prof. L. Escande, 205
Greases, Lubricating, Manufacture and Use, by E. N. Klemgard, 610
Great Western Railway Magazine, 653
Grinding Practice, by F. H. Colvin and F. A. Stanley, 182
Grundlagen für die Messung von Stirnrädern, by Prof. Dr. G. Berndt, 226
Grundschwellen, eine Massnahme gegen Wasserspiegel- und Sohlensenkungen, by Dr.-Ing. H. Straub, 88
Guasti nei Motori da Trazione Urbana, by Dr.-Ing. P. Forti, 206
Guild, Engineers', Pamphlet on History, 688

HANDBOOK, Arc-Welding, by K. Meller, 58
Handbook, Diesel, by J. Rosbloom, 57
Handbook, Gmelins', of Inorganic Chemistry. Hardness of Iron, 146
Handbook of Iron and Steel, Edited by Dr.-Ing. K. Daeves, 175
Handbook, Non-Ferrous Metals (VDI), 430
Handbook, Railway, 1938-39, 686
Handbook of Structural Steelwork, 735
Handbook on Ventilation, Including Air Conditioning, by P. L. Marks, 776
Handbook, Works Managers', by W. S. Hutton, Revised by E. Pull, 342
Handbuch der Anorganischen Chemie, Zweiter Teil; Eisen und Seine Verbindungen, Edited by Drs. R. Abegg, Fr. Auerlach and J. Koppel, 206
Handling Appliances, Conveying Machinery, by W. H. Atherton, 91
Health Ministry, Nineteenth Annual Report, 1937-38, 222
Heat and Thermodynamics, by Prof. M. W. Zemansky, 166
Heating, Progress in, 448
Heating, Ventilating and Air-Conditioning Fundamentals, by Prof. W. H. Severns, 167
History of the Telephone in the United Kingdom, by F. C. G. Baldwin, 146
Hochwasservoraussage, by Dr.-Ing. J. Wallner, 662
Holidays-with-Pay, Cost of, Industrial Welfare Society, 473
House, Evolving, Vol. III, Rational Design, by A. F. Bemis, 284
Household Electric Refrigeration, by J. F. Wostrel and J. G. Praetz, 356
Hundert Jahre Kruppsche Betriebskrankenkasse, 1836 bis 1936, by W. Vossiek, 770
Hundert Jahre Schichau, 1837-1937, by Drs. C. Matschoss and A. Bihl, 312
Hydraulic Network, by Eng.-Prof. G. Supino, 176
Hydraulic Structures, by Prof. A. Schoklitsch, Translated by Prof. S. Shulits, 254
Hydraulics, by Prof. R. L. Daugherty, 88
Hydraulics, Underwater Barrages, Effect on Water Surface and Soil Sinking, by Dr.-Ing. H. Straub, 88
Hydro-Electric Power Commission, Ontario, Annual Report, 1937, 164

ILLINOIS University Bulletin on Coal Utilisation, 424
Impedance Coils, by J. Hak, 771
Income-Tax Chart Manual, Tolley's, 247
Index to A.S.T.M. Standards and Tentative Standards, 146
India and Burma, Law Relating to Electrical Energy in, by J. W. Meares, 167
Indicators, Autographic, for Internal-Combustion Engines, by J. Okill, 661
Industrial Management, National, Principle of, by J. J. Gillespie, 356

Industrial Welfare Society, Cost of Holidays-with-Pay, 473
Industry, Factories Act, 1937, by L. Maddock, 254
Industry, Factories Act, 1937, Norwich Union Society's Pamphlet on, 226
Industry, Modern Business Problems, by Prof. A. Plant and others, 209
Industry, New Light of, 247
Industry, the New Management, by H. T. Hildage, T. G. Marple and Prof. F. L. Meyenberg, 284
Inertia Calculations Relating to the Construction and Foundations of a Piston Engine, by Prof. A. J. Jadot, 88
Insurance, Sickness, Hundred Years' Working at Krupp's, by W. Vossiek, 770
Internal-Combustion Engines. See *Engines*
Iron and its Alloys, Edited by Drs. R. Abegg, Fr. Auerlach and J. Koppel, 206
Iron and Non-Ferrous Metals, Corrosion of, by A. Siegel, 176
Iron and Steel, Cast, Copper in, 429
Iron and Steel Industries, Statistics of, 618
Iron and Steel, Properties and Metallurgy of, Handbook, Edited by Dr.-Ing. K. Daeves, 175

JIGS and Fixtures, by F. H. Colvin and L. L. Haas, Third Edition, 771

KEMPE'S Engineers' Year Book, 1938, 686
Kitsons of Leeds, 1837-1937, by E. Kitson Clark, 338
Koks: Ein Problem der Brennstoffveredlung, by Drs. H. Kurz and F. Schuster, 640
Konvergenz der Engesser-Vianello-Verfahrens, by Dr.-Ing. A. Schleusner, 777
Korrosionen an Eisen und Nichteisenmetallen, by A. Siegel, 176
Krupp's, Hundred Year's Working of Sickness Insurance, 1836–1936, by W. Vossick, 770

LABORATORIUMSBUCH für Gaswerke und Gasbetriebe aller Art, Teil I: Untersuchung fester und flüssiger Stoffe, by Dr. F. Schuster, 342
Labour, Factories Act, 1937, by L. Maddock, 254
Labour, Factories Act, 1937, Norwich Union Society's Pamphlet on, 226
Lanchester's Seven-Figure Logarithmic Tables, 427
Law, Engineering, by R. E. Laidlaw and Prof. C. R. Young, 183
Law Relating to Electrical Energy in India and Burma, by J. W. Meares, 167
Law of Smoke Nuisances, by R. A. Glen, Revised by W. R. H. Steer, 776
Legal, Factories Act, 1937, by L. Maddock, 254
Legal, Factories Act, 1937, Norwich Union Society's Pamphlet on, 226
Lighting in Factories, Fourth Report of Departmental Committee, 650
Limestone Deposits in Ontario, Report, 305
Lloyd's Register Book, 141
Locomotive Building, Kitsons of Leeds, 1837-1937, by E. Kitson Clark, 338
Locomotive à Vapeur, by A. Chapelon, 254
Logarithms, Lanchester's Seven-Figure, 427
Lubricating Greases, Manufacture and Use, by E. N. Klemgard, 610
Lubrication, Practice of, by T. C. Thomsen, 342
Lubrication, Principles and Practice of, by Prof. A. W. Nash and Dr. A. R. Bowen, 312

MACHINE Design, Fundamentals of, by Profs. C. A. Norman, E. S. Ault and I. F. Zarobsky, 696
Machine Drawing for Students, by F. J. Pryer, 206
Machine Tools, Grinding Practice, by F. H. Colvin and F. A. Stanley, 182
Magnesite as a Refractory, by A. W. Comber, 57
Magnesium Alloys, Properties, VDI Papers, 146
Magnetism and Electricity, by Prof. G. Jochmans and F. Descans, 455
Magnetism, Physics in Industry Series, 311
Management, Industrial, Rational Principles of, by J. J. Gillespie, 356
Management, The New, by H. T. Hildage, T. G. Marple, and Prof. F. L. Meyenberg, 284
Manufacturers, British, F.B.I. Register, 1938-1939, 170
Market Control in the Aluminium Industry, by Prof. D. H. Wallace, 182
Maschinenmarkt Rössneck, 448
Materials and Structures, Vol II. Theory and Design of Structures, by Dr. E. H. Salmon, 356
Mathematics for Electrical Students, by H. M. Keal and C. J. Leonard, 776
Mathematics for Shop and Drawing-Office Students, by H. M. Keal and C. J. Leonard, 776
Mathematics, Technical, by H. M. Keal and C. J. Leonard, 776
Matter, Fine Structure of, by Dr. C. H. D. Clark. Part II, Molecular Polarisation. Part III, Quantum Theory and Line Spectra, 209
Measurements, Potentiometer, Direct- and Alternating-Current, by D. C. Gall, 210
Mechanical Engineering Science, First Year, by G. W. Bird, 57
Mechanical World Year Book, 1939, 706
Mechanics for Engineering Students, by G. W. Bird, 312
Mechanics, Quantum, Elements of, by Dr. S. Dushman, 357
Messen und Prüfen von Gewinden, by Ing. K. Kress, 484
Metals, Non-Ferrous, and Alloys, Elastic Properties of, British Non-Ferrous Metals Research Association Report, 485
Metals, Non-Ferrous, and Iron, Corrosion in, by A. Siegel, 176
Metal Work, Sheet and Plate, by E. A. Atkins, 92
Metallschutz, Vol. I, by Dr. W. Wiederholt, 176
Metallurgy, Alloys, Aluminium, High-Strength, Data on, 12
Metallurgy, Alloys, Magnesium, V.D.I. Papers, 146
Metallurgy, Copper in Cast Steel and Iron, 429
Metallurgy, Data on Monel Metal, 647
Metallurgy, Engineering, by Profs. B. Stoughton and A. Butts, 312
Metallurgy, Iron and Its Alloys, Edited by Drs. R. Abegg, Fr. Auerlach, and J. Koppel, 206
Metallurgy, Magnesite as a Refractory, by A. W. Comber, 57
Metallurgy, Metals, Non-Ferrous, and Alloys, Elastic Properties of, British Non-Ferrous Metals Research Association Report, 485
Metallurgy, Nickel-Silver Alloys, Survey of Published Data, 259
Metallurgy, Non-Ferrous Metals Handbook, VDI, 430
Metallurgy, Properties of Iron and Steel, Handbook Edited by K. Daeves, 175
Metallurgy, Structure of Steel Simply Explained, by E. N. Simons and Dr. E. Gregory, 146
Meteorology, Rainfall and Run-off, by Dr.-Ing. J. Wallner, 662
Mines, Chief Inspector of, Thirtieth Annual Report, 620
Mines, H.M. Electrical Inspector's Report, 1937, 367
Mines, Secretary of, Seventeenth Annual Report, 620
Mining, Gold, Underground Practice in, by B. Beringer, 430
Mississippi River, History of Jetties at Mouth of, by E. L. Corthell, 651
Monel Metal Data, 647
Motion and Time Study, by Prof. R. M. Barnes, 92
Motors, Electric Traction, Breakdowns in Urban Transport Services, by Dr.-Ing. P. Forti, 206
Motor Fuel, Principles of Preparation and Application, Vol. I, by Prof. A. W. Nash and Dr. D. A. Howes, 661
Motoring, Importance of Garages in Relation to Motor Traffic and Town Planning, 168

NATIONAL Bureau of Standards, United States, Handbook, 1937, 206
Neon Tubes, Glass Working for, by H. Eccles, 58
Nickel-Silver Alloys, Survey of Published Data, 259
Nomographs, Making of, by M. G. Van Voorhis, 58
Northern Countries in World Economy, 92

OFFICIAL Statistics, Guide to, 132
Oil Fuel in American Railway Operation, Proceedings of American Railway Fuel and Travelling Engineers' Association, 136
Oil and Petroleum Year Book, 1938, 69
Ontario Hydro-Electric Power Commission, Annual Report, 1937, 164
Ontario, Limestone Deposits in, Report, 305
Optics, the Science of Seeing, by Dr. M. Luckeish and F. K. Moss, 641
Overseas Trade of the United Kingdom, Nationality of Carrying Vessels, 679

PAPER Makers, Directory of, 1938, 187
Patents, Designs and Trade Marks, by C. S. Parsons, 455
Penstocks and Outlet Works, Model Studies of Boulder Canyon Project, 15
Petroleum and Oil Year Book, 1938, 69
Petroleum, Science of. Edited by Dr. A. E. Dunstan, Prof. A. W. Nash, Dr. B. T. Brooks, and Sir H. T. Tizard, Vols. I and II, 283; Vols. III and IV, 769
Physics, Elements of Quantum Mechanics, by Dr. S. Dushman, 357
Physics, Fine Structure of Matter, by Dr. C. H. D. Clark. Part II, Molecular Polarisation. Part III, Quantum Theory and Line Spectra, 209
Physics, Flow of Homogeneous Fluids Through Porous Media, by Dr. M. Muskat, 88
Physics, Heat and Thermodynamics, by Prof. M. W. Zemansky, 166
Physics, Reports on Progress in, 205
Physics for Technical Students, by Prof. W. B. Anderson, 226
Physics, Theoretical, by Dr.-Ing. P. Wessel, 175
Piling, Reinforced-Concrete, by F. E. Wentworth-Sheilds and W. S. Gray, 455
Plate and Sheet-Metal Work, Practical, by E. A. Atkins, 92
Plating, Chromium, Historical Survey, 433
Pocket Books and Diaries, 762
Pocket Book, Welding Engineer's, 69
Pollution of Atmosphere, Report, 341
Porous Media, Flow of Homogeneous Fluids Through, by Dr. M. Muskat, 88
Potentiometer Measurements, Direct- and Alternating-Current, by D. C. Gall, 210
Power, Electric, High-Temperature High-Pressure Stations, Transactions of American Society of Mechanical Engineers, July, 1938, 451
Power Generation, Progress in, 448
Power Transmission, Electric, Principles of, by Prof. L. F. Woodruff, 661
Press Guide, Willing's, 1938, 69
Propellers, Marine, Symposium on, North-East Coast Institution of Engineers and Shipbuilders, 619
Protection, Automatic, of Alternating-Current Circuits, by G. W. Stubbings, 226
Pumps, by Prof. H. Matthiessen and E. Fuchslocher, 311

QUANTUM Mechanics, Elements of, by Dr. S. Dushman, 357
"Queen Elizabeth," Brochure on Launch of, 646

RAILWAY and Commercial Gazetteer, Great Britain, 187
Railway, Great Western, Magazine, 653.
Railway Handbook, 1938-39, 686
Railway Locomotive Building, Kitsons of Leeds, 1837-1938, 338
Railway Officials and Railway Year Book, Universal Directory, 1938-1939, 170
Railway, Southern, Handbook of Southampton Docks, 103; Centenary Pamphlet, 655
Railways, The Steam Locomotive, by A. Chapelon, 254
Rainfall and Run-Off, by Dr.-Ing. J. Wallner, 662
Reactors and Air-Core Coils, by J. Hak, 771
Ready Reckoner, "Per Dozen," 705
Reclamation, Dams and Control Works, Second Edition, United States Department of the Interior, 182
Reference Books. See *Annuals*
Refractory, Magnesite, by A. W. Comber, 57
Refrigeration, Household Electric, by J. F. Wostrel and J. G. Praetz, 356
Reinforced Concrete. See *Concrete*
Report, Annual, 1937, Chief Inspector of Factories and Workshops, 193
Report, Annual, 1937-38, Electricity Commissioners', 510
Report, Annual, L.P.T.B. 1938, 564
Report, Annual, 1937, Progress of Rubber Technology, 563
Report, Annual, 1938, Road Research Board, 502
Reports, Annual, Secretary and Chief Inspector of Mines, 620
Report, Building Research Board, 1937, 105
Report, Chemistry Research Board, 395
Report, Food Investigation Research Board, 308
Report on Freezing of Building Materials, 291
Report of Fuel Research Board, 765
Report, H.M. Electrical Inspector of Mines, 1937, 367
Report on Lighting in Factories, 650
Report, Limestone Deposits in Ontario, 305
Report, Ontario Hydro-Electric Power Commission, 1937, 164
Reports on Progress in Physics, 205
Rete Idrauliche, by Eng.-Prof. G. Supino, 176
River Flow, Effect of Barrages on Water Surface and Soil Sinking, by Dr.-Ing. H. Straub, 88
Road Research Board Report, 1938, 592
Robinson, T., & Son, Ltd., History of, 246
Roller Bearings, by W. Jürgensmeyer, 611
Roofing, Zinc Roll-Cap, 734
Rubber Chemistry, Modern, by Dr. H. Barron, 92
Rubber Technology, Annual Report on Progress, 563

SANDS, Foundry, by T. R. Walker, 776
Schichau Centenary, by Drs. C. Matschoss and A. Bihl, 312
Scientific Encyclopædia, Van Nostrand's, 176
Screw Threads, Measurement and Testing, by Ing. K. Kress, 484
Searchlights, Modern, Album of, 666
Seeing, Science of, by Dr. M. Luckiesh and F. K. Moss, 841
Sewers, Main, Construction of, by C. G. Kent and J. C. Morris, 168
Sewing Machines, Lockstitch and Chainstitch, by W. Riches, 342
Sheet and Plate Metal Work, Practical, by E. A. Atkins, 92
Shipping, Lloyd's Register Book, 141
Sickness Insurance, Hundred Years' Working at Krupp's, by W. Vossiek, 770
Smoke Nuisances, Law of, by R. A. Glen. Revised by W. R. H. Steer, 776
Soil Mechanics, Building Research Board Report, 1937, 105
South Africa, Technical Colleges of, 248
Southampton Docks, Southern Railway Handbook, 103; Centenary Pamphlet, 655
Southern Railway, Handbook of Southampton Docks, 103; Centenary Pamphlet, 655
Spanish-English and English-Spanish Technical and Engineering Dictionary, by R. L. Guinle, 88
Spectrochemical Abstracts, by F. Twyman, 103
Spillways, Model Studies of, Boulder Canyon Project, 15
Spur Gears, Principles of Measurement, by Prof. Dr. G. Berndt, 226
Standards, National Bureau of, Handbook, 1937, 206
Standards and Tentative Standards, A.S.T.M., Index to, 146
Statically-Indeterminate Structures, Theory of by Profs. W. M. Fife and J. B. Wilbur, 167
Statistics of Iron and Steel Industries, 618
Statistics, Official, Guide to, 132
Steam Generators, by Dipl.-Ing. D. W. Rudorff, 697
Steel for A.R.P., Booklet on, 420
Steel and Iron, Cast, Copper in, 429
Steel and Iron, Properties and Metallurgy of, Handbook. Edited by Dr.-Ing. K. Daeves,, 175
Steel, Structure of, Simply Explained, by E. N. Simons and Dr. E. Gregory, 146
Steelwork, Structural, Handbook of, 735
Structural Steelwork, Handbook of, 735
Structures, Hydraulic, by Prof. A. Schoklitsch. Translated by Prof. S. Shulits, 254
Structures, Statically-Indeterminate, Theory of, by Profs. W. M. Fife and J. B. Wilbur, 167.
Structures, Theory and Design of, by Dr. E. H. Salmon, 356
Sweden Year Book, 1938, 686
Symposium on Propellers, North-East Coast Institution of Engineers and Shipbuilders, 619

TARIFFS and Costs in Electricity Supply, by D. J. Bolton, 640
Technical Mathematics, by H. M. Keal and C. J. Leonard, 776
Telephone, History of, in United Kingdom, by F. G. C. Baldwin, 146
Tests of Welded Drums, Schedule of, 256
Testing Materials, American Society for, Index to Standards and Tentative Standards, 146; Pamphlet on Cement Standards, 360
Thermodynamics and Heat, by Prof. M. W. Zemansky, 166
Threads, Screw, Measurement and Testing, by Ing. K. Kress, 484
Timbers, Colonial, Leaflet on, 506
Timber, Dictionary of Wood, by E. H. B. Boulton, 226
Timber, Dry Rot in, 463
Timber Drying, by R. G. Bateson, 206
Timber Preservation, by G. M. Hunt and Prof. G. G. Garratt, 209
Timber, Its Structure and Properties, by H. E. Desch, 254
Time and Motion Study, by Prof. R. M. Barnes, 92
Tolley's Income-Tax Chart Manual, 247
To-Morrow's War, by S. Possony, 770
Top Sawyer: a Biography of David Davies of Llandinam, by I. Thomas, 776
Toronto University Engineering Society, Transactions, 277
Trade Marks, Designs and Patents, by C. S. Parsons, 455
Transport Board, London Passenger, Annual Report (1938), 564
Transport, Urban, Breakdowns of Electric Traction Motors, by Dr.-Ing. P. Forti, 206
Trautwine's Civil Engineer's Reference Book, 1937, 206
Travellers, Hints to, 205
Tubes, Luminous, Glass Working for, by H. Eccles, 58
Turner's Handbook, 735

UNITED Kingdom, Overseas Trade, Nationality of Carrying Vessels, 679
United States, National Bureau of Standards Handbook, 1937, 206

V.D.I. Jahrbuch, 1938, 141
Van Nostrand's Scientific Encyclopedia, 176
Ventilating, Heating and Air Conditioning Fundamentals, by Prof. W. H. Severns, 167
Ventilation, Including Air Conditioning, Handbook, by P. L. Marks, 776
Ventilation, Progress in, 448
Vibration Problems in Engineering, by Prof. S. Timoshenko, 226
Vibrations, Technics of, by Dr.-Ing. H. K. Klotter, 641
Vocabulary, International Electrotechnical, 684

WÄLZLAGER, by W. Jürgensmeyer, 611
War, To-Morrow's, by S. Possony, 770
Ward, T. W., Ltd., Diamond Jubilee, 706
Water Pipes, Earthing of Electrical Installations to, Regulations for, 165
Waterways, Hydraulic Networks, by Eng.-Prof. G. Supino, 176
Welded Drums, Schedule for Examination and Tests, 256
Welding, Arc, Handbook, by K. Meller, 58
Welding Engineer's Pocket Book, 69
Werkstoff Handbuch Nichteisenmetalle (V.D.I.) 430
Werkstoff-Handbuch Stahl und Eisen, Edited by Dr.-Ing. K. Daeves, 175
Werkstoff Magnesium, V.D.I. Papers, 146
Willing's Press Guide, 1938, 69
Wind-Tunnel Tests on Design of Cabins, 307
Woods, Colonial, Leaflet on, 506
Wood, Dictionary of, by E. H. B. Boulton, 226
Wood, Dry Rot in, 463
Wood, Drying of, by R. G. Bateson, 206
Wood Preservation, by G. M. Hunt and Prof. G. G. Garratt, 209
Wood, Its Structure and Properties, by H. E. Desch, 254
Works Engineer, by W. R. J. Griffiths and W. O. Skeat, 697
Works Manager's Handbook, by W. S. Hutton, Revised by E. Pull, 342
Workshop Calculations, by W. A. J. Chapman, 777
Workshops and Factories, Annual Report of Chief Inspector, 193
World Economy and the Northern Countries, 92

YEAR Book, Kempe's Engineer's, 1939, 686
Year Book, Mechanical World, 1939, 706
Year Book, Oil and Petroleum, 1938, 69
Year Book, Railway, and Universal Directory of Railway Officials, 1938-1939, 170
Year Book, Sweden, 1938, 686
Year Book, V.D.I., 1938, 141
Year Books. See also *Annuals*

ZINC Roll-Cap Roofing, 734

ONE-PAGE AND TWO-PAGE PLATES.

PLATE

I. Hydraulic Laboratory of the Federal Institute of Technology, Zürich (between pages 4 and 5)

II. Peak-Load Hydro-Electric Generating Station at Deichow (facing page 37)

III. Heat-Treatment Machine for Soil-Road Construction (facing page 40)

IV. The Power House at Boulder Dam on the Colorado River (between pages 58 and 59)

V. 4,400-b.h.p. Diesel-Electric Locomotive for the Roumanian State Railways (between pages 100 and 101)

VI. The Cunard White Star Liner "Mauretania" (between pages 122 and 123)

VII. Hydraulic Laboratory of the Federal Institute of Technology, Zürich (between pages 150 and 151)

VIII. 44-ft. High-Pressure Butterfly Valves; Boulder Dam Power House (between pages 180 and 181)

IX. Italian Banana-Carrying Vessels "Ramb I" and "Ramb IV" (between pages 216 and 217)

PLATE

X. 14-ft. High-Pressure Butterfly Valves; Boulder Dam Power House (between pages 240 and 241)

XI. Vibration in Aircraft (facing page 285)

XII. Stresses in Welded Pipes (facing page 290)

XIII. The Reconstruction of King's Cross Underground Railway Station (between pages 296 and 297)

XIV. Four-Lift Spiral-Guided Gas-Holder at Sheffield (between pages 324 and 325)

XV. Mechanical Equipment of the G.P.O.; Mount Pleasant Sorting Office, London (between pages 354 and 355)

XVI. The Cunard White Star Quadruple-Screw Liner "Queen Elizabeth" (between pages 382 and 383)

XVII. High-Pressure La Mont Boiler at the Works of Messrs. G. and J. Weir, Ltd. (between pages 414 and 415)

XVIII. Mechanical Equipment; Mount Pleasant Sorting Office (facing page 437)

PLATE

XIX. Mechanical Equipment of the G.P.O.; Mount Pleasant Sorting Office, London (facing page 438)

XX. Electrical Equipment, Corby Tube Works; Messrs. Stewarts and Lloyds, Ltd. (facing page 471)

XXI. The Junkers Ju 90 Air Liner (facing page 488)

XXII. Drag-Suction Dredger "Fu-Shing" for the Whangpoo Conservancy Board (between pages 496 and 497)

XXIII. Mechanical Equipment of the G.P.O.; Mount Pleasant Sorting Office, London (between pages 524 and 525)

XXIV. Erection of Balanced-Cantilever Bridge Over the Connecticut River (facing page 555)

XXV. Hume Concussional-Spun Concrete Pipes (facing page 558)

XXVI. Machinery of the Drag-Suction Dredger "Fu-Shing"; Whangpoo Conservancy Board (between pages 578 and 579)

XXVII. The 115,000-h.p. Turbines at Boulder Dam (facing page 609)

PLATE

XXVIII. The 115,000-h.p. Turbines at Boulder Dam (facing page 610)

XXIX. Mechanical Equipment of the G.P.O.; Mount Pleasant Sorting Office, London (between pages 636 and 637)

XXX. Pressure Regulators for 115,000-h.p., Turbines at Boulder Dam (facing page 669)

XXXI. Tower-Type Winding Plant; Mukden, Manchoukuo (facing page 672)

XXXII. Governor Control System; 115,000-h.p. Turbines, Boulder Dam (facing page 693)

XXXIII. Governor Control System; 115,000-h.p. Turbines, Boulder Dam (facing page 694)

XXXIV. Unit-Construction Transportable Aeroplane Shed (facing page 728)

XXXV. Double End-Tenoning and Trenching Machine for Railway Coachwork (facing page 745)

XXXVI. The Passenger-Carrying Airship "Graf Zeppelin" (between pages 752 and 753)

PATENT RECORD.

The Patent Record is classified under the following sub-titles:—AERONAUTICS; AGRICULTURAL APPLIANCES; ELECTRICAL APPARATUS; GAS ENGINES PRODUCERS, HOLDERS, &c.; GUNS AND EXPLOSIVES; INTERNAL-COMBUSTION ENGINES; MACHINE AND OTHER TOOLS, SHAFTING, &c.; MILLING, AND SEPARATING MACHINERY; MINING, METALLURGY, &c.; MISCELLANEOUS; MOTOR ROAD VEHICLES; PUMPS; RAILWAYS AND TRAMWAYS; STEAM ENGINES, BOILERS, &c.; AND TEXTILE MACHINERY.

SUBJECT MATTER.

Aeronautics :

Undercarriage, Seaplane. The Fairey Aviation Co., Ltd., and M. J. O. Lobelle, 410

Agricultural Appliances :

Grass Drier. Kaloroil Burners, Ltd., and A. Goldberg, 722

Electrical Apparatus :

Echo-Sounding Apparatus. Henry Hughes & Son, Ltd., and D. O. Sproule, 178

Regulator, Electric. English Electric Co., Ltd., and J. E. Calverley, 90

Gas Engines, Producers, Holders, &c. :

External-Combustion Engine. The New Engine Co., Ltd., and J. F. J. Malone, 722

Guns and Explosives :

Magazine, Machine-Gun. Birmingham Small Arms Co., Ltd., R. V. Shepherd, and J. W. Shilvock, 410

Internal-Combustion Engines :

Indicator, Fuel-Consumption. J. B. Barrett, 178

Machine and other Tools, Shafting, &c. :

Coupling, Flexible. Silentbloc, Ltd., and V. A. Trier, 778

Grinding Wheel. Norton Grinding Wheel Co., Ltd., and W. Haddock, 90

Milling Machine, Propeller-Blade. J. Stone & Co., Ltd., and C. J. Lyth, 634

Milling and Separating Machinery :

Separator, Centrifugal. C. E. Harvey, 410

Mining, Metallurgy, &c. :

Bench, Push. Wellman Seaver Rolling Mill Co., Ltd., and G. S. McLay, 234

Kiln, Tunnel. Gibbons Bros., Ltd., and W. E. Gibbons, 90

Polishing Mill. Wellman Seaver Rolling Mill Co., Ltd., and Sydney Smith, 634

Wagon, Coke. Wellman Smith Owen Engineering Corporation, Ltd., and G. T. Purves, 322

Miscellaneous :

Bearing, Anti-Friction. G. & J. Weir, Ltd., and C. G. Pullin, 178

Filtering Apparatus. H. A. Brassert & Co., Ltd., 90

Miscellaneous—*continued.*

Floor, Concrete. J. H. Walker, 778

Floor, Insulated. J. H. Walker, 322

Hopper Charger, Automatic. British Coal Distillation, Ltd., C. Machen and E. H. G. Aram, 322

Packing Machine. Southall & Smith, Ltd., R. B. Partridge, and F. W. Weaver, 234

Motor Road Vehicles :

Braking System. Automotive Products Co., Ltd., and D. T. Brock, 234

Coach, Motor. Leyland Motors, Ltd., and C. B. Nixon, 778

Coupling, Hydraulic. Daimler Co., Ltd., and L. H. Pomeroy, 634

Crankshaft, Built-Up. Armstrong Siddeley Motors, Ltd., L. F. R. Fell and H. L. Towns, 722

Gear, Variable-Speed Epicyclic. E. J. De Normanville and De Normanville Transmission, Ltd., 234

Tipping Vehicles. Benson Motor Body Co., Ltd. and J. E. Bissell, 322

Pumps :

Rotary Pump. Tecalemit, Ltd., and W. Langley, 634

Railways and Tramways :

Coupling, Flexible. English Electric Co., Ltd., and E. A. Binney, 322

Steam Engines, Boilers, &c. :

Boiler, Water-Tube. Babcock & Wilcox, Ltd., and E. L. Luly, 178

Stoker, Furnace. J. W. Lewer, 410

Stoker, Mechanical. Smokeless Combustion Co., Ltd., and J. N. Sword, 90

Textile Machinery :

Belt-Shifting Mechanism. Fairbairn Lawson Combe Barbour, Ltd., and N. Wailes-Fairbairn, 722

NAMES OF PATENTEES.

Aram, E. H. G., and others. Automatic Hopper Charger, 322

Armstrong Siddeley Motors, Ltd., and others. Built-up Crankshaft, 722

Automotive Products Co., Ltd., and another. Braking System, 234

Babcock & Wilcox, Ltd., and another. Water-Tube Boiler, 178

Barrett, J. B. Fuel-Consumption Indicator, 178

Benson Motor Body Co., Ltd., and another. Tipping Vehicles, 322

Binney, E. A., and others. Flexible Coupling, 322

Birmingham Small Arms Co., Ltd., and others. Machine-Gun Magazine, 410

Bissell, J. E., and others. Tipping Vehicles, 322

Brassert, H. A., & Co., Ltd. Filtering Apparatus, 90

British Coal Distillation, Ltd., and others. Automatic Hopper Charger, 322

Brock, D. T., and others. Braking System, 234

Calverley, J. E., and others. Electric Regulator, 90

Daimler Co., Ltd., and another. Hydraulic Coupling, 634

De Normanville, E. J., and others. Variable-Speed Epicyclic Gear, 234

De Normanville Transmission, Ltd., and another. Variable-Speed Epicyclic Gear, 234

English Electric Co., Ltd., and another. Electric Regulator, 90

English Electric Co., Ltd., and another. Flexible Coupling, 322

Fairbairn Lawson Combe Barbour, Ltd., and another. Belt-Shifting Mechanism, 722

Fairey Aviation Co., Ltd., and another. Seaplane Undercarriage, 410

Fell, L. F. R., and others. Built-Up Crankshaft, 722

Gibbons Brothers, Ltd., and another. Tunnel Kiln, 90

Gibbons, W. E., and others. Tunnel Kiln, 90

Goldberg, A., and others. Grass Drier, 722

Haddock, W., and others. Grinding Wheel, 90

Harvey, C. E. Centrifugal Separator, 410

Hughes, Henry, & Son, Ltd., and another. Echo-Sounding Apparatus, 178

Kaloroil Burners, Ltd., and another. Grass Drier, 722

Langley, W., and others. Rotary Pump, 634

Lewer, J. W. Furnace Stoker, 410

Leyland Motors, Ltd., and another. Motor Coach, 778

Lobelle, M. J. O., and others. Seaplane Undercarriage, 410

Luly, E. L., and others. Water-Tube Boiler, 178

Lyth, C. J., and others. Propeller-Blade Milling Machine, 634

Machen, C., and others. Automatic Hopper Charger, 322

Malone, J. F. J., and others. External-Combustion Engine, 722

McLay, G. S., and others. Push Bench, 234

New Engine Co., Ltd., and another. External-Combustion Engine, 722

Nixon, C. B., and others. Motor Coach, 778

Norton Grinding Wheel Co., Ltd., and another. Grinding Wheel, 90

Partridge, R. N., and others. Packing Machine, 234

Pomeroy, L. H., and others. Hydraulic Coupling, 634

Pullin, C. G., and others. Anti-Friction Bearing, 178

Purves, G. T., and others. Coke Wagon, 322

Shepherd, R. V., and others. Machine-Gun Magazine, 410

Shilvock, J. W., and others. Machine-Gun Magazine, 410

Silentbloc, Ltd., and another. Flexible Coupling, 778

Smith, Sydney, and others. Polishing Mill, 634

Smokeless Combustion, Ltd., and another. Mechanical Stoker, 90

Southall & Smith, Ltd., and others. Packing Machine, 234

Sproule, D. O., and others. Echo-Sounding Apparatus, 178

Stone, J., & Co., Ltd., and another. Propeller-Blade Milling Machine, 634

Sword, J. N., and others. Mechanical Stoker, 90

Tecalemit, Ltd., and another. Rotary Pump, 634

Towns, H. L., and others. Built-Up Crankshaft, 722

Trier, V. A., and others. Flexible Coupling, 778

Wailes-Fairbairn, N., and others. Belt-Shifting Mechanism, 722

Walker, J. H. Concrete Floor, 778

Walker, J. H. Insulated Floor, 322

Weaver, F. W., and others. Packing Machine, 234

Weir, G. & J., Ltd., and another. Anti-Friction Bearing, 178

Wellman Seaver Rolling Mill Co., Ltd., and another. Polishing Mill, 634

Wellman Seaver Rolling Mill Co., Ltd., and another. Push Bench, 234

Wellman Smith Owen Engineering Corporation, Ltd., and another. Coke-Wagon, 322

LONDON:

Printed for the Proprietors by HARRISON & SONS, LTD., at the BEDFORD PRESS, 20 & 21, Bedfordbury, in the Parish of St. Martin's-in-the-Fields, and Published by JOHN ALEXANDER DIXON, at the Offices of "ENGINEERING," 35 & 36, Bedford Street, in the Parish of St. Paul, Covent Garden, both in the County of Middlesex.—Friday, January 27, 1939.